INVESTIGATION REPORT

BLOODWORM INCIDENTS IN PUBLIC SWIMMING POOLS

December 2004

Office of The Ombudsman
Hong Kong

TABLE OF CONTENTS

EXECUTIVE SUMMARY

LEGEND OF ABBREVIATIONS

LIST OF ANNEXES

CHAPTER

1	*INTRODUCTION*	
	Bloodworm Incidents	*1.1- 1.3*
	Purpose and Ambit	*1.4*
	Methodology	*1.5- 1.7*
	Investigation Report	*1.8*
2	*BACKGROUND*	
	Leisure and Cultural Services Department	*2.1 - 2.3*
	Inter-departmental Working Group	*2.4 - 2.10*
	Other Assisting Departments	*2.11-2.13*
	Independent Experts	*2.14*
3	*SIGNIFICANT EVENTS*	
	Bloodworms	*3.1*
	Significant Events	*3.2*
	Kowloon Park Swimming Pool	*3.3 - 3.11*
	Tai Wan Shan Swimming Pool	*3.12- 3.17*
	Leisure and Cultural Services Department Headquarters	*3.18 -3.23*
	Kwun Tong Swimming Pool	*3.24- 3.26*
	FEHD Report	*3.27- 3.47*
	Hammer Hill Road Swimming Pool	*3.48- 3.57*

4	*MANAGEMENT OF POOLS*	
	Background	*4.1*
	Public Pools	*4.2 - 4.5*
	Previous Sighting of Bloodworms	*4.6*
	Private Swimming Pools	*4.7 - 4.8*
5	*The AFTERMATH*	
	FEHD and LCSD Joint Inspections	*5.1*
	LCSD Special Cleansing Operations	*5.2 - 5.4*
	Latest Development	*5.5 - 5.6*
	A Further Note	*5.7*
6	*OBSERVATIONS AND OPINIONS*	
	General Comments	*6.1 - 6.2*
	Co-ordination Among Parties Concerned	*6.3 - 6.10*
	LCSD Approach	*6.11- 6.16*
	Disclosure of Information	*6.17- 6.22*
	Cover-up or Hiccup	*6.23-6.24*
	Hygienic Condition at Pools	*6.25- 6.31*
	A Further Note	*6.32*
7	*CONCLUSIONS AND RECOMMENDATIONS*	
	Conclusions	*7.1 - 7.4*
	Recommendations	*7.5 - 7.6*
8	*FINAL REMARKS*	
	LCSD Comments	*8.1 – 8.4*
	Comments From Other Departments	*8.5*
	Final Remarks From The Ombudsman	*8.6 – 8.10*

EXECUTIVE SUMMARY

Direct Investigation on Bloodworm Incidents in Public Swimming Pools

Background

1. The discovery of bloodworms[1] in public swimming pools from early August to early September 2004 attracted intense media interest. The Leisure and Cultural Services Department ("LCSD"), with the assistance of a number of Government departments and two independent experts, investigated the causes of bloodworms in swimming pools.

2. Since reporting the discovery on 20 August, the media followed the developments closely. On 31 August, the media reported widely that findings (not published) of the Food and Environmental Hygiene Department ("FEHD") had contradicted LCSD assertion that there was insufficient evidence of bloodworms breeding in pools. On 1 September, extensive media reports alleged cover-up by LCSD. On 2 September, there were further media reports of LCSD destroying evidence. These news reports put the credibility of LCSD on the line. Furthermore, inconsistent views between LCSD and FEHD cast doubts over the co-ordination between the two departments.

The Investigation

3. Against this background, The Acting Ombudsman on 3 September initiated a direct investigation to examine:

   (a) actions by LCSD and FEHD since the first report of bloodworms being found in public pools;
   (b) co-ordination between LCSD and FEHD;
   (c) approach adopted by the two departments in the disclosure of information to the public; and
   (d) the appropriateness and effectiveness of the actions by the two

[1] Red in colour due to presence of haemoglobin, bloodworms do not harm human beings. Four stages in life cycle are eggs, larvae (bloodworms), pupae and midges.

departments, including monitoring of hygienic condition of public swimming pools.

Methodology

4. Apart from studying information from departments concerned (case files, correspondence between and within departments, statement from the expert and witness statements obtained by the Police) and paying site visits to Kowloon Park, Tai Wan Shan and Hammer Hill Road Swimming Pools, we interviewed a number of officers, including the Director of Leisure and Cultural Services ("DLCS"), the Deputy Director (Leisure Services) ("DDLS"), the Assistant Director (Leisure Services) (1) ("ADLS"), some LCSD district staff, FEHD consultant and Pest Control Officers.

Inter-departmental Working Group

5. On the discovery of bloodworms in Kowloon Park Swimming Pool, DLCS convened a meeting of relevant departments to consider the need (or not) for closure of the indoor pools. LCSD later regarded this as the Inter-departmental Working Group ("Working Group"). Four Government departments (FEHD, Department of Health ("DH"), Electrical and Mechanical Services Department ("EMSD") and Water Supplies Department ("WSD")) assisted in the investigation and attended meetings of the Working Group:

(a) The Pest Control Advisory Section ("PCAS") of FEHD was Government's expert for providing professional advice, to the public and Government departments, on prevention of pest infestation.

(b) The Surveillance and Epidemiology Branch ("SEB") of DH tracked incidents of potential public health concern and advised Government departments accordingly.

(c) EMSD, being responsible for regular maintenance of water filtration systems of pools, provided technical support and advice in the examination of the filtration systems of affected pools.

(d) WSD conducted chemical and bacteriological tests on water samples from pools.

Other Participants

6. In addition, LCSD sought assistance from the Architectural Services Department ("Arch SD"), the Police and a microbiologist. Later, a biologist offered his services.

Significant Events

7. Between August and early September 2004, bloodworms were found in nine public swimming pools. The key events below give insight into LCSD's handling of the incidents.

Kowloon Park

8. On 20 August, after inspection of Kowloon Park Swimming Pool ("Kowloon Park"), PCAS advised ADLS that no obvious breeding ground had been found, but water collected on a vinyl sheet at construction works and drains at the side of pools might encourage breeding of midges (搖蚊). In the afternoon, SEB informed LCSD that presence of bloodworms in pool water might indicate unsatisfactory high concentration of organic matter, caused possibly by faecal contamination. DH suggested to close and empty the pool for thorough cleansing, as prescribed by World Health Organisation guidelines.

9. In the evening, DLCS called an urgent meeting of the Working Group to discuss whether Kowloon Park should be closed and if so, when. After deliberating for about four hours, LCSD finally agreed to close the indoor pools the following day.

10. At the press conference held on 21 August to announce the closure of the indoor pools of Kowloon Park, ADLS indicated that LCSD had endeavoured in vain to ascertain the cause of bloodworms in pools. LCSD would drain away the water for thorough inspection of the sand trap and the filtration system.

Tai Wan Shan

11. On 23 August, staff of Tai Wan Shan Swimming Pool ("Tai Wan Shan") found bloodworms coming out from the base of a turtle water slide ("turtle"). District Leisure Manager ("DLM") was on site that evening and made a report to ADLS at about 10:30 pm. Next morning, the microbiologist allegedly suggested to ADLS on site there could be stagnation of water and breeding of midges inside the "turtle". In the evening, LCSD, Arch SD and the supplier removed the "turtle". Live and dead bloodworms were found at the joint between the "turtle" and the bottom of the pool. Samples of bloodworms and water were taken to WSD, DH and FEHD for examination.

Report to the Police

12. The same evening, a meeting convened by DDLS (acting as DLCS) with ADLS and other LCSD senior staff considered that the bloodworms were likely to have been "foreign objects" and media reporters knew about the bloodworms in Kowloon Park and Tai Wan Shan before LCSD. Consequently, DDLS called in Police assistance that night. The Police agreed on the following day to investigate.

Press Conference on 25 August

13. Before the press conference, DDLS e-mailed Home Affairs Bureau that LCSD had found two experts who would be able to say the swimming pool environment was not conducive to breeding of bloodworms. As LCSD could not rule out human factor, they had called in the Police and would mention this to the press.

14. At the press conference, ADLS said that after consolidating views from experts, LCSD did not rule out the possibility of the bloodworms having been brought in from outside. Police assistance had, therefore, been sought.

FEHD Report

15. On 26 August, in reply to DLM, FEHD advised that poor water circulation at the base of the "turtle" at Tai Wan Shan might have provided suitable environment for the growth of bloodworms.

16. In the afternoon of 27 August, FEHD e-mailed ADLS its interpretation

of findings on the presence of bloodworms in Kowloon Park and Tai Wan-Shan ("FEHD Report"). In a nutshell, the report advised on the possibility of midges (搖蚊) surviving in the pool water of Kowloon Park and the "turtle" at Tai Wan Shan providing a favourable breeding place. It reported finding of 31 larvae, 30 pupal cases and 3 adults in the samples collected from Tai Wan Shan and water circulation at the bottom of the "turtle" poor.

17. The Working Group met on 28 August to discuss the FEHD Report and its impact on the re-opening of Kowloon Park in early September. The meeting considered that it would not be able to prove beyond doubt that the pool water was breeding ground. FEHD would check if any larvae would hatch from the sand and carbon samples from Kowloon Park. ADLS suggested to further consider the FEHD Report at the next meeting.

18. On 30 August, TVB evening news reported that the design of the "turtle" at Tai Wan Shan had resulted in breeding of bloodworms and that the Police investigation had found the full life cycle of bloodworms in the water samples.

19. DLCS was concerned and conferred with the Chief Information Officer ("CIO") by phone to formulate a press statement to respond to the TVB news report. She directed CIO to check with ADLS for factual accuracy. The press release, issued close to midnight, stated that tests had proved the water quality at Tai Wan Shan to be up to standard. There was no evidence that bloodworms were bred in the pool. LCSD investigation in some public swimming pools was still underway and findings would be announced as soon as available.

20. On 31 August, many local papers carried the TVB news report. In the morning, ADLS attended two radio phone-in programmes and electronic media interviews stating that samples examined by FEHD had confirmed presence of larvae, but no egg or pupa. He also maintained that water inside the "turtle" was not stagnant and thus not suitable for breeding bloodworms.

21. In the afternoon, the Working Group met again to consider the FEHD Report. There were divergent views and the discussion continued into the evening. Meanwhile, TVB evening news reported that, according to a report from FEHD to LCSD the week before, larvae and pupae had been found in Tai Wan Shan and Kwun Tong. TVB also quoted ADLS maintaining that no egg or pupa had been found, that the water under the "turtle" was not stagnant and thus not suitable for breeding bloodworms, so that human factor (人爲因素) could not be ruled out.

22. DLCS, back from overseas duty since 27 August, joined the meeting in the late evening. She was then briefed and shown a copy of the FEHD Report for the first time. LCSD realised that the incident had turned into a credibility issue.

23. The Working Group meeting concluded that the filtration systems of swimming pools were properly functioning. There was insufficient evidence **to prove beyond doubt** that natural breeding of midges had occurred in the swimming pools. The Working Group also decided to hold a press conference on the following day. In the same evening, Police issued a press statement that there was no evidence to suggest bloodworms had actually bred in pool water.

24. The press conference on 1 September was attended by DLCS, DFEH, ADLS, FEHD Consultant and the two experts. LCSD informed the media that there was no concrete evidence to prove that midges were bred in the leisure pool in Tai Wan Shan. ADLS admitted that he had missed out some details of the Tai Wan Shan findings, but reiterated that water under the "turtle" was not stagnant.

Hammer Hill Road Swimming Pool

25. On 1 September, around 8:55 a.m., lifeguards of Hammer Hill Road Swimming Pool ("Hammer Hill Road") found bloodworms underneath the artificial turf on the platform next to a rock feature in the middle of the outside leisure pool. LCSD staff pulled away the artificial turf and found more bloodworms. District management staff notified LCSD Headquarters ("LCSDHQ") around 10:00a.m. Staff cleared away the artificial turf, which was cut into pieces and kept in plastic bags. Samples of bloodworms were collected and sent to FEHD. After the press conference, ADLS instructed district staff to call the Police officer for the bloodworm case.

26. In the afternoon, district staff tried various means to clean the dirt from the rock platform and finally managed to pour it into the surface channels. Their prime concern was to avoid contaminating the pool water. The cleansing process was recorded on CCTV tape. Shortly after 6:00 p.m. the Police arrived at Hammer Hill Road, having received a "999" report from a lifeguard at 5:46 p.m. on the discovery of bloodworms. Meanwhile, the Police officer for the case had learnt of the incident from the news on TV. He then received a call from the district staff. He arrived at the scene at around 7:20 p.m.

27. On 2 September, the media reported prominently bloodworms at Hammer Hill Road, with some headlines alleging LCSD destroying evidence.

28. After a joint inspection by LCSD, FEHD and the Police, LCSD issued a press release in the evening on Hammer Hill Road that preliminary examination by FEHD of the specimens collected revealed about 5,000 larvae, some 300 pupae and about 30 adults. It was believed that there was natural breeding of midges in the pool compound.

Further Development

29. On 4 September, LCSDHQ issued revised guidelines to districts requiring staff to inform the Police of bloodworm discoveries, to close the pool and to protect the original environment.

30. The Working Group met again on 6 September and agreed that there was not sufficient evidence to show that bloodworms could breed or develop in normal swimming pool water. However, for special installations in swimming pools, such as water play equipment and artificial turf, where the flow of water was slow and organic matter could accumulate, bloodworms could breed. Some places within or surrounding swimming pool complexes, such as drains and manholes, could also be breeding ground for bloodworms. LCSD issued a press release on the same day to convey the findings.

The Aftermath

31. Since early September, LCSD had taken actions to re-focus its attention on pool environment, including joint inspections with FEHD of all public pools and special cleansing operations. A Steering Committee chaired by DLCS was established to review the management of public swimming pools. LCSD also undertook to remove or modify play equipment and replace artificial turf with ceramic tiles, organise refresher courses for staff and publicity programmes to enhance public co-operation in maintaining good hygiene of pools.

Observations and Conclusions

32. It was unfortunate that the bloodworm incidents coincided with the LCSD dispute with its lifeguards. LCSD's call for Police assistance and repeated public assertions of bloodworms being due not to faulty systems but possibly to human factor (人為因素) further complicated matters and fuelled the media's relentless pursuit for the truth. It was, therefore, no surprise that the media's evident access to the FEHD Report, LCSD's responses and the discovery of bloodworms at Hammer Hill Road sparked off questions over the department's credibility. For this Office, the prime concern on the incidents was for transparency in public disclosure, coordination amongst departments, good management and effective monitoring of public hygiene of public swimming pools.

33. We find that LCSD lacked impartiality in its own investigation into the bloodworm incidents and was selective in the reception of views. However, we find no evidence of a cover-up on the part of ADLS. Nor is there any deliberate attempt to destroy evidence at Hammer Hill Road.

34. We consider the bloodworm incidents to have been an administrative and public relations fiasco on the part of LCSD. We see this as a consequence of the following.

Insufficient focus on possibility of natural occurrence

35. LCSD had invited FEHD to visit Kowloon Park and Tai Wan Shan to investigate the causes for bloodworms and identify possible breeding sites. It did not ask for FEHD inspection of the other affected pools until DLCS and DFEH decided on 2 September 2004 to conduct joint inspections of all 36 pools. We see LCSD as not focusing sufficiently on the possibility of bloodworms growing in the natural environment and the need for more thorough examination of the cause of their presence. It was concerned, quite properly, over the inconvenience to the public and chaos from cancellation of bookings. The senior directorate officers were at the time also engaged in pressing commitments, e.g. organisation of the reception of the Hong Kong Olympic team's return from Athens and the impending visit of the gold medallists of the China Olympic team in early September. However, given DH's advice on public health, the FEHD findings and the keen media interest, LCSD should have been alerted to take a more balanced view about the environment of pools and alive to the need for proper public information.

Absence of open mind

36. There could be different causes for bloodworms in different pools. This was echoed by the FEHD Report. DH had pointed out that natural causes for the breeding of bloodworms in the pools should not be ruled out before introducing external factors. Minutes of the two Working Group meetings on 28 and 31 August recorded divergent views on the possibility of bloodworms breeding in the pools.

37. Given the intense media attention on the bloodworm incidents, LCSD should have examined the divergent views within the Working Group with particular care and prudence. It should have kept an open mind about natural causes or human factor (人爲因素) during its investigation. In the face of the divergent views expressed by the various parties concerned, LCSD actions did not give us the impression of an open mind or proper consideration of the balance of probability. Instead, it cast an unfortunate conspiratorial light on the situation.

Gap in communication among LCSD directorate

38. There are problems of communication among LCSD directorate i.e. ADLS, DDLS and DLCS. While ADLS regularly provided DDLS step-by-step reports on progress of the investigation, he did not seem to consider the divergent views among the parties concerned sufficiently critical to warrant consultation with his seniors. DDLS submitted a one-page report to DLCS on the bloodworm incidents on the latter's return on Friday 27 August from overseas duty. DDLS was then already aware of the FEHD Report from ADLS and had even asked for implications on the cause for bloodworms. Given this background, it is odd that DDLS simply accepted ADLS' brief verbal report on 30 August without taking the initiative to ask for more details on the Working Group discussions to brief DLCS more fully.

39. It is particularly odd as on 30 August, DLCS was concerned to respond to the TVB news report. This Office finds it incredible that DLCS was apparently not briefed on the FEHD Report until late evening the day after, 31 August. This shows a lack of alertness for critical issues on the part of ADLS and poor judgment on the part of DDLS in not advising DLCS on the latest update, to ensure her full knowledge of the sensitive situation and to seek a line of response from her.

Undue haste to respond to media requests

40. LCSD explained to this Office that the decision to attend radio phone-in programmes and electronic media interviews on 31 August had been made in haste, to clarify the TVB news report the night before (30 August) that full life cycle of midges (搖蚊) had been found in Tai Wan Shan. The Working Group had yet to hold its second meeting to further discuss the FEHD Report on 31 August. There seems to have been undue haste in responding to media interviews prior to definitive conclusion of Working Group discussions.

Inexperience in media relations and public information

41. During the radio phone-in programmes and electronic media interviews, ADLS had wanted to inform the public of the Working Group conclusion that there was insufficient evidence to prove beyond doubt natural breeding of midges (搖蚊) in the pools. However, as he did not have a copy of the FEHD Report with him, he made a mistake on the number of bloodworms and did not mention the presence of pupal cases. Given the intention of the interviews was to give a "correct picture" to the public on the findings at Tai Wan Shan, we find it inconceivable that ADLS was not fully familiar with the facts. This is particularly strange since the FEHD Report of 27 August had been quite explicit about the findings and by 31 August, LCSD members should have had enough time to digest the findings and rehearse ready responses. It is even more surprising that ADLS claimed not to have consulted DLCS or even DDLS on the line of response. We find no evidence of a deliberate cover-up on the part of ADLS as he reported progress regularly and faithfully. However, this episode reflects his poor judgement and lack of experience in meeting the media and informing the public.

Insufficient transparency in the release of information

42. LCSD maintained that it had kept the public informed of progress of the investigation by its three press conferences (21, 25 August and 1 September) and frequent attendances at radio programmes and responses to media enquiries. We have examined LCSD's press releases, transcripts of its interviews, press briefing and conferences. LCSD's intentions might well have been to respond quickly but the actual delivery backfired. The general impression was that LCSD had not been sufficiently transparent in the release of information and, worse, that it had been

economical with the truth. For example, bloodworms were found in nine pools, but LCSD did not always volunteer the fact about bloodworm discovery in each and every affected pool to the public and in some pools, only a notice of closure was issued. At the press conference on 25 August, ADLS explained at length the reasons for seeking Police assistance and the likelihood of human factor (人爲因素) being involved in the incidents. In media interviews later, ADLS maintained that the water inside the "turtle" at Tai Wan Shan was not stagnant, despite the FEHD's findings and LCSD's internal view of the need to be cautious in future selection of the design of water play equipment. LCSD statements tended to mislead and did not give a balanced picture of the investigation.

Lack of support from LCSDHQ

43. Since 20 August, LCSDHQ had issued several sets of instructions to districts on follow-up actions to be taken immediately on discovery of bloodworms. Unfortunately, after LCSDHQ had called in Police assistance on 25 August, it gave no instructions on how staff should facilitate the Police investigation until 4 September 2004. As a result, some district staff were not aware of the need to report discovery of bloodworms to the Police or the need to preserve the integrity of a suspected crime scene. This was the situation at Hammer Hill Road on 1 September. In view of the intense media interest in the bloodworm incidents and suspicion of human factor (人爲因素) culminating in a report to the Police, we expect an acute sense of urgency and vigilance within LCSD in internal communication of key information. District staff have faithfully reported the incidents, practically blow by blow, to LCSDHQ even amidst their emergency and routine tasks on the ground. However, they have little experience in dealing with high-profile and sensitive media matters and should have extra guidance from LCSDHQ on assisting in Police inquiry.

Co-ordination among parties concerned

44. DLCS was quick to respond to the first sighting of bloodworms, in Kowloon Park. On 20 August, she called a meeting of the relevant expert departments. From the outset, FEHD, DH, EMSD, WSD and Arch SD had rallied to help LCSD in the investigation. We note that each department had done its part in providing prompt assistance and cooperative support to LCSD. In fact, DH had initiated contact with LCSD immediately upon learning of the incidents from the press reports on 20 August 2004.

A Further Note

45. We also find that **FEHD** had done its duty in promptly responding to LCSD's call for assistance and consistently providing frank and professional advice from the pest control perspective. FEHD action was timely and appropriate. FEHD had also been proactive in learning from the experience: issuing guidelines to staff and circularising to operators of private swimming pools in early September to draw their attention to the need for vigilance in complying with the required pool and personal hygiene standards.

Hygienic Condition of Pools

46. There are clear requirements for public hygiene and established practices for water quality assurance. However, during our visits to Tai Wan Shan, Hammer Hill Road and Kowloon Park, we noted that there was insufficient time for proper cleansing around or inside the pools, play equipment and artificial features. Overbooking of swimming pool lanes had made it impossible for cleansing to be done during session breaks.

47. We also note from public complaints that pool staff had not been always vigilant in requiring swimmers to take a shower and footbath before entering the pool. There were also complaints on air of faecal discharge by swimmers (probably small children). All these point to the need for greater vigilance and more vigorous enforcement on the part of LCSD.

48. However, there is also an indictment on inconsiderate users who ignore public hygiene. They forget not only their civic duty but also the risk to their own health. Swimmers have a social obligation to keep the pools clean, both for other users' enjoyment and for their personal hygiene. Parents have an additional responsibility to train young children in good toilet habits and in social ethics.

Recommendations

49. Since 2 September 2004, LCSD has commendably carried out a range of remedial measures to raise the hygienic condition of public swimming pools.

50. Against this background, we make the following recommendations in the hope of assisting DLCS and her staff:

Hygiene of Public Swimming Pools

(a) increase the sampling frequency for bacteriological and chemical examination of pool water;

(b) continue with the half-day closure of swimming pools;

(c) review the schedule and specifications for cleansing operations, taking into account the design of pools and ancillary features;

(d) review frequency and requirement for cleansing of pools and surrounding areas;

(e) put in place a monitoring programme of follow-up inspections to ensure that cleansing work has been carried out satisfactorily;

(f) from time to time, seek FEHD's support in detecting and preventing possible breeding of insects on site;

(g) provide training to frontline staff to strengthen their knowledge in public hygiene, pest control and sampling techniques;

(h) review the current booking arrangements to avoid over-booking of swimming lanes during session breaks;

(i) review and, if necessary, revise the design of pools under planning;

(j) confer with DH on whether the hygiene standard at public swimming pools should be raised;

Internal and External Communication

(k) enhance two-way communication between LCSDHQ and frontline staff for a better understanding of the rationale and priorities in the management of swimming pools;

(l) review the approach and mechanism within LCSD on deciding lines of response for release of information to the public to ensure accuracy and transparency;

(m) provide media and crisis management training to LCSD senior managerial and directorate staff to enhance their ability to handle media relations and crisis situations; and

Public Education

(n) publicity and public education programmes on swimmer etiquette and the need for proper hygiene in the use of public swimming pools.

Response from DLCS

51. DLCS' comments essentially centred on the points below:

(a) a gap in communication among directorate officers;

(b) heavy commitments on her part and DDLS;

(c) ADLS' inadequate alertness to sensitive or critical issues for the attention of DLCS and DDLS; and

(d) her misplaced confidence in ADLS.

Final Remarks from The Ombudsman

52. The Ombudsman notes DLCS' remarks on the gap in communication among the directorate officers. She also notes that inexperience with handling matters of intense public interest and anxiety to present a favourable public image for the department might have clouded the ADLS' judgment. However, The Ombudsman considers the approach taken by LCSD in the investigation into the bloodworm incidents a reflection of the department's overall inadequate crisis

management.

53. On the response to the TVB news report on 30 August, attendance at radio phone-in programmes and interviews with the electronic media in the morning of 31 August, we are surprised that DLCS should have relied just on the CIO checking with ADLS on the factual accuracy of the press release and on the judgment of ADLS. He might be a professional expert on leisure services and on swimming pools but here, the issues were media relations and public information. Furthermore, those media appearances had been cleared with DDLS or DLCS. In this case, DLCS had directed the prompt response to the media but somehow stopped short of ascertaining the full facts about the latest development in the investigation and of giving him any steer whatsoever. There seems to have been a lapse in judgment also on the part of DLCS at this juncture. The Ombudsman considers that it would have been better to await definitive conclusion to the Working Group discussions before further media releases.

54. The Ombudsman welcomes the positive response of LCSD to our recommendations and commends its prompt action in implementation.

55. The Ombudsman expresses sincere appreciation for the cooperation and assistance rendered by LCSD, FEHD, DH, EMSD, WSD, Arch SD and the Police in the course of this investigation.

---- End ----

Office of The Ombudsman
Ref. OMB/DI/130
December 2004

LEGEND OF ABBREVIATIONS

ADLM	Assistant District Leisure Manager
ADLS	Assistant Director, Leisure Services (1)
Arch SD	Architectural Services Department
CIO	Chief Information Officer
CLM	Chief Leisure Manager
DDLS	Deputy Director, Leisure Services
DDLM	Deputy District Leisure Manager
DFEH	Director of Food, Environment and Hygiene
DH	Department of Health
DLCS	Director of Leisure and Cultural Services
DLM	District Leisure Manager
EMSD	Electrical and Mechanical Services Department
FEHD	Food, Environment and Hygiene Department
HAB	Home Affairs Bureau
HQ	Headquarters
LCSD	Leisure and Cultural Services Department
PCAS	Pest Control Advisory Section
PPM	parts per million
SEB	Surveillance and Epidemiology Branch
SLM	Senior Leisure Manager
WSD	Water Supplies Department

LIST OF ANNEXES

ANNEX	TITLE	PARAGRAPH
1.	FEHD PEST-IN-BRIEF (ISSUE NO. 4): BLOODWORMS	3.1
2.	LIST OF POOLS AFFECTED BY BLOODWORMS	3.2
3.	OUTLINE ON SEQUENCE OF EVENTS	3.2
4.	FEHD INTERPRETATION OF FINDINGS	3.30
5.	CLEANING SCHEDULE FOR SWIMMING POOLS	4.5
6.	SWIMMING POOLS FOUND WITH BLOODWORMS DURING FEHD/LCSD JOINT INSPECTIONS	5.1

1

INTRODUCTION

BLOODWORM INCIDENTS

1.1 The discovery of bloodworms in public swimming pools from early August to early September 2004 attracted wide media interest. The Leisure and Cultural Services Department ("LCSD") is responsible for the management of public swimming pools. With the assistance of a number of Government departments[1] and two independent experts (paras 2.4 - 2.14), it investigated the causes of bloodworms in swimming pools.

1.2 Bloodworms were discovered in Kowloon Park Swimming Pool on 4, 5, 12 and 18 August 2004. The media reported the discovery on 20 August. LCSD then announced the closure of the indoor pools at Kowloon Park on 21 August. Media interest intensified with more press coverage on further discovery of bloodworms in other public swimming pools. On 24 August, LCSD sought the assistance of the Police. On 31 August, the media reported widely that findings (not published) of the Food and Environmental Hygiene Department ("FEHD") had shown a water slide at Tai Wan Shan Swimming Pool to be a possible breeding ground for

---

1 Including Food and Environmental Hygiene Department, Department of Health, Water Supplies Department, Electrical and Mechanical Services Department and Architectural Services Department

bloodworms. This contradicted the LCSD assertion that there was insufficient evidence of bloodworms breeding in pools. On 1 September, extensive media reports alleged cover-up by LCSD. That very day, bloodworms were found in Hammer Hill Road Swimming Pool and the LCSD clean-up operation there before Police arrival gave rise to further accusations of LCSD destroying evidence. These news reports put the credibility of LCSD on the line. Furthermore, inconsistent views between LCSD and FEHD cast doubts over the co-ordination between the two departments.

1.3 Against this background, The Acting Ombudsman decided to initiate a direct investigation under section 7(1)(a)(ii) of The Ombudsman Ordinance, Cap 397. On 3 September 2004, the Director of Leisure and Cultural Services ("DLCS") and the Director of Food and Environmental Hygiene ("DFEH") were informed of her decision.

PURPOSE AND AMBIT

1.4 This direct investigation focuses on examination of:

(a) actions by LCSD and FEHD since the first report of bloodworms being found in public pools;

(b) co-ordination between LCSD and FEHD;

(c) approach adopted by the two departments in the disclosure of

information to the public; and

(d) the appropriateness and effectiveness of the actions by the two departments, including monitoring of hygienic condition of public swimming pools.

METHODOLOGY

1.5 We studied information from LCSD and FEHD, case files, correspondence (including e-mail exchanges) within and between departments, guidelines and instructions, press releases and media reports. We visited Kowloon Park, Tai Wan Shan and Hammer Hill Road Swimming Pools. We interviewed the following officers:

LCSD Headquarters

DLCS,

Deputy Director, Leisure Services ("DDLS"),

Assistant Director, Leisure Services (1) ("ADLS"),

a Chief Information Officer ("CIO") and

a Chief Leisure Manager ("CLM").

LCSD Districts

three District Leisure Managers ("DLM"),

one Deputy District Leisure Manager ("DDLM"),

three Assistant District Leisure Managers ("ADLM"),

three Senior Amenities Assistant,

two Senior Lifeguards and

five Lifeguards.

FEHD

a Consultant and

two Pest Control Officers.

1.6 We also studied information from the Department of Health ("DH"), Electrical and Mechanical Services Department ("EMSD"), Water Supplies Department ("WSD") and Architectural Services Department ("Arch SD") that provided assistance to LCSD in its investigation (para 1.1). In response to our request, the Police provided for our examination copies of 20 statements and 97 questionnaires obtained in the course of its investigation.

1.7 Members of the public were invited to give comments and suggestions from 3 to 24 September 2004. We received ten written submissions, one of which gave very insight into the incident at one of the affected pools.

INVESTIGATION REPORT

1.8 On completion of our direct investigation, the draft report was sent on 16 November to DLCS and DFEH. Comments from DH, EMSD, WSD, Arch SD, the Police and the two experts (via LCSD) were also sought on those parts relevant to them. These were received between 24 November to 6 December. This final report

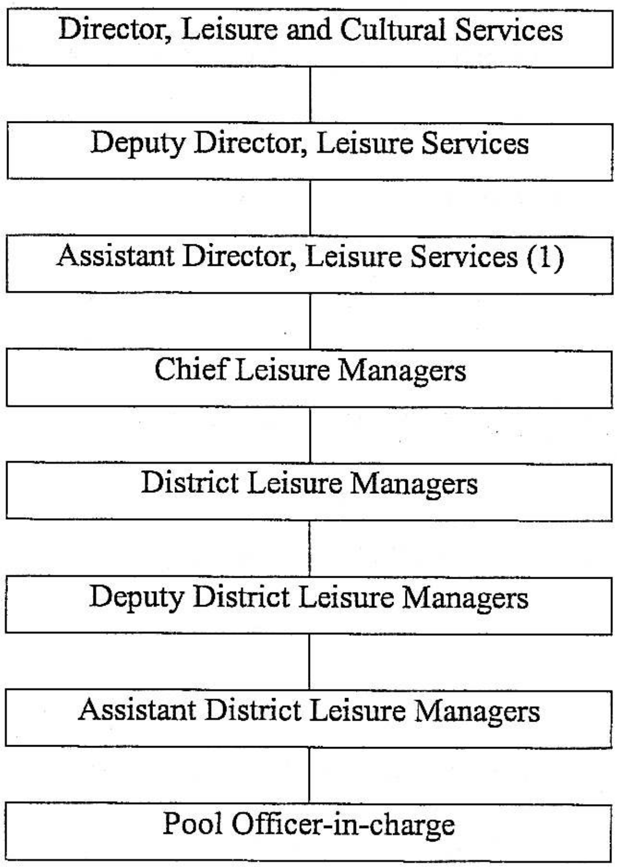
was issued on 13 December.

2

BACKGROUND

LEISURE AND CULTURAL SERVICES DEPARTMENT

2.1 LCSD is responsible for the management of 36 public swimming pool complexes, comprising 196 pools of various sizes, design and functions. The chain of command for management of public swimming pools is as follows:



2.2 DLCS is responsible for the planning and provision, management and promotion of public leisure and cultural services and facilities in Hong Kong. Reporting to DDLS who oversees management of all leisure services and facilities, ADLS is responsible for policy on management of public leisure facilities, including swimming pools. ADLS is assisted by CLMs. The CLMs at regional level and DLMs at district level oversee the operation of swimming pools as well as other leisure facilities within their area. On site, an officer-in-charge, usually a Senior Amenities Assistant, takes care of the day-to-day pool operations, including the filtration system and cleansing of pools.

2.3 With the discovery of bloodworms, ADLS was tasked to find the source. The senior directorate, i.e. DLCS and DDLS, closely monitored the progress, took decisions on crucial issues and approved issue of press releases or replies to media enquiries. DDLS acted as DLCS during the period 21 to 27 August 2004 when DLCS was on overseas duty.

INTER-DEPARTMENTAL WORKING GROUP

2.4 From the outset, DLCS saw the need to draw on the expertise of four other departments. On 21 August, the day following the meeting (para 3.7) to discuss the closure of Kowloon Park, had referred to these departments in public interviews as the Inter-departmental Working Group ("Working Group"). Senior professionals and/or professionals of these departments participated in LCSD's investigation and attended the Working Group meetings and deliberations. Their roles are outlined below.

Food and Environmental Hygiene Department

2.5 The Pest Control Advisory Section ("PCAS") of FEHD is the Government expert for providing professional advice, to the public and Government departments, on prevention of pest infestation. LCSD first contacted FEHD for assistance in identifying specimens collected on 19 August 2004 from Kowloon Park.

2.6 Between 2 and 15 September 2004, FEHD held joint inspections with LCSD of all public swimming pools to identify potential breeding sites for bloodworms.

Department of Health

2.7 DH is the adviser to Government on public health matters. Its Surveillance and Epidemiology Branch ("SEB") of the Centre for Health Protection tracks incidents of potential public health concern and advises Government departments accordingly. It provided advice to LCSD throughout the bloodworm incidents.

2.8 A senior professional in SEB of DH contacted LCSD on 20 August 2004 upon learning from the press reports of bloodworms in Kowloon Park and advised LCSD on measures to protect public health. Between 19 August and 10 September 2004, LCSD provided water samples to DH's laboratory for bacteriological examination to monitor the quality of water in the affected pools.

Electrical and Mechanical Services Department

2.9 EMSD is responsible for regular maintenance of water filtration systems of public swimming pools. Upon the discovery of bloodworms on 20 August 2004, LCSD sought extra technical support from EMSD for the examination and operation of the water filtration systems at the affected pools and advice on signs of infestation in the systems.

Water Supplies Department

2.10 WSD conducts regular chemical and bacteriological tests on water samples from public swimming pools. During the bloodworm incidents, WSD conducted tests on water samples provided by LCSD from affected pools.

OTHER ASSISTING DEPARTMENTS

2.11 LCSD also sought assistance from Arch SD and the Police. These two departments were not members of the Working Group.

Architectural Services Department

2.12 Arch SD has been responsible for the design and construction of public swimming pools, assisting LCSD in the selection, procurement and installation of play equipment for fun/leisure pools. During the incidents, LCSD requested Arch SD to assist in inspecting, dismantling and removing certain water play equipment.

The Police

2.13 LCSD contacted the Police in the evening of 24 August 2004 for inquiries into possible external factors for the presence of bloodworms in public swimming pools. The Police took up the case on the next day. On 15 September the Police e-mailed its findings to LCSD (followed by post on 4 October) that it had concluded its inquires but found no evidence of any criminal offence.

INDEPENDENT EXPERTS

2.14 LCSD also sought advice from two independent experts: a microbiologist and a biologist. The experts inspected some of the affected pools, gave their opinions on bloodworms in pools and attended the meetings of the Working Group.

3

SIGNIFICANT EVENTS

BLOODWORMS

3.1 Bloodworms are the larvae of midges (摇蚊), an insect in the family of Chironomidae. Due to the presence of haemoglobin, they are red in colour. There are four stages in the insect's life cycle: egg, larva (bloodworm), pupa and adult. Chironomidae are not harmful to humans and will not spread disease but can induce allergy. Bloodworms are commonly found in streams and feed on tiny particles of organic matter and algae. Polluted water, therefore, tends to favour their growth[2]. In view of the recent public interest, FEHD has provided information about this insect on its website for public viewing (**Annex 1**).

SIGNIFICANT EVENTS

3.2 Between August and early September 2004, bloodworms were found in nine public swimming pools (**Annex 2**). Four of these pools (namely, Kowloon Park, Tai Wan Shan, Kwun Tong, and Hammer Hill Road) marked the turn of events.

[2] Source: FEHD website

The sequence of events up to 6 September 2004 is at **Annex 3**. The information below gives insight into the incidents.

KOWLOON PARK SWIMMING POOL

__20.8.04__ ***Morning***

3.3 Bloodworms in Kowloon Park attracted front-page coverage in *Apple Daily*. CIO and ADLS suggested, and DLCS agreed, to hold a press visit-cum-briefing to demonstrate pool cleansing operations at Kowloon Park.

3.4 At the request of ADLS, a FEHD officer inspected Kowloon Park and found midges (搖蚊) and mosquitoes near the main pool. He gave verbal advice to ADLS on the spot, followed by a memo that day saying that no obvious breeding ground was found, but that the vinyl sheet above the platform (where construction works were underway) and drains at the side pools might encourage breeding of midges (搖蚊). They were found at the side of the main pool. FEHD suggested preventive measures, such as regular inspection, to ensure that the whole drainage system including sewer was free from organic matters. It advised that **bloodworms might proliferate in choked drains and stagnant water.**

Noon (during session break)

3.5 ADLS gave a press briefing at Kowloon Park and demonstrated cleansing of the pools with the automatic underwater cleaner and testing of water samples. The aim was to show that water quality was up to the required standard. Media members found bloodworms in the pool during the visit.

Afternoon

3.6 A senior professional in DH issued a memo to LCSD, expressing concern that presence of bloodworms indicated unsatisfactory water quality such as high concentration of organic content, caused possibly by faecal contamination. DH suggested emptying the pool for thorough cleansing, as prescribed by the World Health Organisation guidelines, before re-opening to the public.

Evening

3.7 DLCS called an urgent meeting with representatives from DH, FEHD, WSD and EMSD to discuss whether Kowloon Park should be closed and if so, when. DDLS and ADLS attended from LCSD. The DH representative advised prudence and closure of the pool immediately to protect public health. On the possible causes of bloodworms in swimming pools, both DH and FEHD reminded LCSD that "natural infestation of bloodworms in the pools should be excluded before external introduction was identified as the sole source of bloodworms in pools". After deliberating for about four hours, it was decided to close the pools the following day. The meeting agreed to hold a press conference to inform the public of the closure.

<u>21.8.04</u>

3.8 Media reported widely the presence of bloodworms in Kowloon Park. ADLS held a press conference with DH, WSD and EMSD representatives to announce the closure of the indoor main, secondary and diving pools of Kowloon Park. ADLS indicated that LCSD had endeavoured in vain to ascertain the cause of bloodworms in the indoor main and secondary pools. LCSD would, therefore, drain away the water for thorough inspection of the sand trap and the water filtration system.

23.8.04 ***Morning***

3.9 Lifeguards found bloodworms in two outdoor leisure pools. These were subsequently closed for thorough cleansing.

Afternoon

3.10 LCSD, DH, EMSD, FEHD and WSD met to coordinate procedures in case bloodworms were detected in more pools. Meanwhile, ADLS also approached an expert microbiologist for assistance.

24.8.04 ***morning***

3.11 ADLS and the expert inspected Kowloon Park. At the end of the visit, the expert made the following conclusions and comments to ADLS:

" I could not make a definite conclusion on the cause of bloodworms being found at

Kowloon Park swimming pools.... The possibility of the filtration system being infested, however, appeared to be low."
Source: Information from the expert microbiologist

TAI WAN SHAN SWIMMING POOL

23.8.04 ***Afternoon***

3.12 Lifeguards found worm-like substance in a paddling fun pool. The officer-in-charge decided to drain the pool and check the water filtration system to find the cause. Water was drained between 2:00 to 4:30 p.m. Lifeguards informed the officer in-charge that bloodworms were oozing out from the base of the water slide (the "turtle") in the middle of the fun pool. Staff took samples of water and bloodworms. DLM was alerted. Her initial report by e-mail to CLM, with a copy to ADLS, at about 5:45 p.m. suggested the possibility of human factor as she had checked the pool the day before and the hygienic condition had been in order. She also reported that reporters were found at the scene taking photos of the "turtle".

Evening

3.13 DLM visited Tai Wan Shan at around 8:30p.m. When staff flushed the "turtle", she found bloodworms coming out intermittently from its base. DLM made a verbal report to ADLS followed by e-mail at about 10:30 p.m.:

"I visited Tai Wan Shan at 8:30 p.m. and found that one or two bloodworms coming out intermittently from the hole at the base of the 'turtle' water slide play equipment at the children's fun pool. We suspected that a nest of bloodworms

are hiding at the base of the equipment, which measures about 2.5m x 4m .... We cannot wipe out the bloodworms without removing the equipment.... We will ask staff of Arch SD and EMSD to inspect the equipment tomorrow morning and check the reasons why bloodworms were found at the base of the equipment ... We recommend that the play equipment be lifted up to trace the nest and disinfect the area concerned."

Source: LCSD file

__24.8.04__ ***Morning***

3.14 News of bloodworms in Tai Wan Shan was reported in the media. On learning the news, a senior professional from SEB of DH contacted ADLS to express concern that the "turtle" was suspected to be a breeding ground for bloodworms. He advised that the pool should not be re-opened, that the "turtle" should not be put back immediately and that if confirmed to be the breeding ground, it should be removed permanently.

3.15 ADLS and the expert microbiologist visited Tai Wan Shan. After the inspection, the expert gave his view:

"....There was a possibility that the bottom of the waterslide could contain a puddle of relatively stagnant water. The presence of air holes in the structure could allow midges to enter the hollow space and breed inside the waterslide. As similar play equipment was not installed in the Kowloon Park, there might be different reasons for bloodworms gaining access to these two pools.

In view of the presence of an identifiable cause at the Tai Wan Shan paddling pool, the LCSD should immediately look for similar equipment in other LCSD swimming

pools. They should either be thoroughly examined, cleansed, or dismantled if necessary...."

Source: Information from the expert microbiologist

(See para 8.2 for LCSD response)

Afternoon

3.16 At the request of LCSD, staff of FEHD visited Tai Wan Shan and collected 3 larvae and 10 adult Chironomidae for identification.

Late Evening

3.17 LCSD, Arch SD and the supplier removed the "turtle" in the night. Live and dead bloodworms were found at the joint between the "turtle" and the bottom of the pool. Bloodworm samples were sent to FEHD and DH and water samples taken to WSD for examination.

LCSD HEADQUARTERS ("LCSDHQ")

<u>24.8.04</u>

3.18 LCSDHQ gave consolidated instructions to districts on measures to be taken regarding bloodworms in public pools:

(a) strict enforcement of section 8 of the Public Swimming Pools Regulation (i.e. need for swimmers to take shower and footbath

before entering pools);

(b) close monitoring of pool water quality by hourly testing and suitable adjustment to meet the required standards;

(c) regular inspections of pools to ensure the hygienic condition;

(d) mounting of fishing net at the water outlets to the pools to see if bloodworms came from within the pool water filtration system.

On detection of bloodworms or irregularities, districts to:

(a) report to Senior Leisure Manager (Aquatic Venues), respective CLM, ADLS and CIO **immediately;**

(b) inform DH by telephone and seek its advice on partial closure of pool and/or draining of pool water;

(c) take water sample to DH and WSD for testing;

(d) send samples of bloodworms to FEHD for identification and assessment of the cause of such bloodworms in pools;

(e) increase free residual chlorine level in water up to 3 ppm[3].

Source: LCSD information to this Office

3.19 A biologist specialised in the study of bloodworms offered to help LCSD in the investigation. LCSD accepted his offer (para 2.14).

3.20 A meeting convened by DDLS with ADLS, CLMs and CIO (and other Assistant Directors of Leisure Services) in the evening considered that, on the preliminary findings at Kowloon Park, the pool water and filtration system could not be breeding ground for bloodworms and that the bloodworms were likely to have been "foreign objects". The meeting further noted that media reporters had known about the bloodworms in Kowloon Park and Tai Wan Shan before LCSD and could not rule out human factor. Police investigation might therefore, help to detect causes

[3] parts per million

other than biological or environmental. Against this background DDLS, acting as DLCS, contacted a Deputy Commissioner of Police for assistance that night. He also made a report on the discovery of bloodworms in Tai Wan Shan and Kwun Tong to Home Affairs Bureau ("HAB").

25.8.04

3.21 The Police agreed to investigate. DDLS e-mailed HAB to report on further discovery of bloodworms at Kwun Tong and the press conference in the afternoon:

> "... We have also found two academics who would be able to say that the swimming pool environment is not conducive to the breeding of red worms. Given the occurrence of red worms in one swimming pool after another, we cannot rule out human factor. As such,... we have got in touch with Police to seek assistance.... We will also mention this point in our press briefing...."
> *Source: LCSD information*

3.22 LCSD held a press conference attended by ADLS, the two experts, DH and EMSD representatives. Just before the press conference, the DH representative (a senior professional) suggested verbally to ADLS and others present:

> "high temperature, very weak wind and poor air quality in the previous week could have been a cause or contributing factor for the breeding and hatching of midges in pools. This, together with poor circulation of water under the play equipment in Tai Wan Shan, further suggested that natural infestation of

bloodworms in pools and especially shallow water was possible."

Source: DH information to this Office

(See para 8.3 for LCSD response)

3.23 At the press conference, the expert microbiologist advised that the situation at Kowloon Park was not particularly suitable for eggs to hatch into bloodworms. The expert biologist commented that pool water was constantly filtered and was unlikely to allow such growth. He believed that the bloodworms had not been generated from the pools but were "foreign objects". ADLS reported that the filtration system was in order and water samples were found to be up to the required standard, that after consolidating views from experts, LCSD did not rule out the possibility of the bloodworms having been brought in from outside and that LCSD had, therefore, reported to the Police for investigation. He urged the public to take a thorough shower before entering the pools.

KWUN TONG SWIMMING POOL

<u>**24.8.04**</u> ***Morning***

3.24 Pool staff found a few bloodworms in the paddling pool. The pool was closed for investigation and cleansing.

<u>**25.8.04**</u> ***Morning***

3.25 Before opening of the pools, LCSD staff found bloodworms in the

secondary pool. Kwun Tong was closed for detailed examination. EMSD inspected the water filtration system. A few bloodworms were found inside the backwash water outlet of the system.

26.8.04 ***Morning***

3.26 In a radio phone-in programme, ADLS explained the reasons for reporting to the Police. He said that after the water in Kowloon Park had been drained, the two experts had examined the filtration system and found it in order. Regarding Kwun Tong, district staff had found that bloodworms could get into the filtration system from outside, without being trapped by the sand tank or carbon tank. LCSD suspected human factor (人爲因素) to be involved and so referred the case to the Police. ADLS urged people not to vandalize.

FEHD REPORT

26.8.04

3.27 DLM requested FEHD to give its initial views on the bloodworm specimens collected at Tai Wan Shan. FEHD e-mailed to the DLM:

> "In the plastic bag: 9 larvae ... in the bottles: 3 adult and 22 larvae ... there is poor water circulation at the base of the water slide. It provides environment for the growth of Chironomidae larvae. The shallow water trapped inside the "turtle" at the fun pool also allows rapid evaporation of free residual chlorine,

> resulting from the possible growth of algae when the chlorine level is low, which provide food for nurturing larvae."
> *Source: LCSD file*

3.28 DLM copied this to ADLS, who forwarded it to DDLS. On receipt, DDLS e-mailed ADLS:

> "This seems not related to human factor. We must improve the situation. Please advise on the way forward."
> *Source: LCSD file*

ADLS then asked CLM to suggest improvement measures.

<u>27.8.04</u> ***Morning***

3.29 CLM replied by e-mail:

> "... enclosed and large-based design water play equipment at Tai Wan Shan Swimming Pool would likely cause stagnant water which provides a good environment for growth of mosquitoes ..." We/Arch SD should be cautious in selecting suitable design of water play equipment for swimming pools in future."
> *Source: LCSD file*

Afternoon

3.30 FEHD e-mailed ADLS its interpretation of findings on the presence of bloodworms in Kowloon Park and Tai Wan Shan ("FEHD Report")(details in **Annex 4**):

"Kowloon Park -

Around 1100 adult Chironomidae were collected by traps set near the indoor pool. All larvae received were examined to be of 3rd and 4th instars[4]. One adult examined was found to have pupal case .... Findings indicated that Chironomidae might be able to survive in the water of the swimming pool:

1. The circulation of water (at the covered part of the pool) ...very poor....

2. Larvae were of 3rd and 4th instars and one adult to have a pupal case attached. This appears that aquatic stages of the Chironomidae were able to survive in the pool water and pupate into adult.

Tai Wan Shan -

Samples all flushed from the inside of a hollow recreational facility ... 31 larvae, 30 pupal cases and 3 adult Chironomidae were received .... Findings indicated that the recreational facility there might provide a favorable breeding place for Chironomidae:

1. Air holes in the upper part of waterslide might allow entry of adult Chironomidae to lay eggs.

2. Water exchange in the bottom of the turtle water slide was poor.

3. Larvae, pupal cases and adult Chironomidae were collected from the water trapped inside the slide.... This indicated that Chironomidae might be able to complete their life cycle in the water trapped inside the slide."

Source: FEHD information to this Office

3.31 ADLS immediately passed the FEHD Report to the two experts and called for a meeting with the Working Group to discuss the findings. He also

[4] four stages of larvae: 1st, 2nd, 3rd and 4th instars

forwarded the FEHD Report to regional CLMs (with copy to DDLS and the two other Assistant Directors, Leisure Services) and instructed them to check whether water underneath play equipment with design similar to that in Tai Wan Shan was stagnant and whether this created an environment for growth of bloodworms.

3.32 In response, DDLS e-mailed ADLS:

> "What are the implications?"
> *Source: LCSD file*

28.8.04 ***Morning***

3.33 ADLS replied:

> "...FEHD ...would like to continue the culture of the samples taken from Kowloon Park until next Monday. I am afraid this would affect the re-opening of the pool complex. Hence I will meet with all parties concerned including [the expert microbiologist and biologist] to assess the implications this morning at Kowloon Park Swimming Pool...."
> *Source: LCSD file*

3.34 Representatives from LCSD, FEHD, DH and EMSD and the two experts met in the morning to go over the FEHD Report and to discuss the re-opening of Kowloon Park:

> One of the experts opined that if there was no sign of complete life cycle, breeding of bloodworms in the swimming pool filtration system could not be established. It was doubtful if eggs could hatch and larvae could grow in the swimming pool

water or filtration system. FEHD would check if any larvae would hatch from the sand and carbon samples from Kowloon Park. DH representatives reiterated that "natural infestation of bloodworms in the pools should be excluded before external introduction was identified as the sole source of bloodworms in pools." The meeting considered that in the absence of a complete life cycle of bloodworms, it would not be able to prove beyond doubt that the pool water was breeding ground for bloodworms. ADLS suggested to further consider the FEHD Report at the next meeting.

Source: Working Group meeting notes

Afternoon

3.35 ADLS e-mailed to brief DDLS on the morning discussion of the FEHD Report:

"The remains of one larvae was found in one sand and one carbon sample out of 36 samples collected. This was considered normal by [Experts] as bloodworms were found in pool water before complete closure [of Kowloon Park]. Hence they were not worrying on the performance of the existing filtration system. FEHD would continue to culture the sand and carbon and would advise us the outcome on Monday.... Water samples would be sent to WSD and DH for testing on 30 August. The results would be available by 2 September...."

Source: LCSD file

<u>30.8.04</u> ***Afternoon***

3.36 ADLS briefed DDLS by phone on the initial conclusion of the Working Group (para 3.34).

Evening

3.37 TVB evening news reported that the design of the water slide at Tai Wan Shan had resulted in breeding of bloodworms and that the Police investigation had found the full life cycle of bloodworms in the water samples.

3.38 DLCS was concerned and conferred with CIO by phone to formulate a press statement to respond to the TVB news report and directed CIO to check with ADLS for accuracy.

3.39 The press release (**Annex** 3), issued close to midnight, stated that water samples sent for tests had proved the water quality at Tai Wan Shan to be up to standard. There was no evidence that bloodworms were bred in the pool. LCSD investigation in some public swimming pools was still underway and findings would be announced as soon as available.

<u>31.8.04</u> *Morning*

3.40 Many local papers carried the TVB news report. In the morning, ADLS attended two radio phone-in programmes and gave an interview to the electronic media. He maintained that samples examined by FEHD had confirmed presence of larvae, but no egg or pupa. Furthermore, the water inside the "turtle" was circulating, not stagnant. The "turtle" was not breeding ground for bloodworms, and LCSD was waiting for the outcome of Police investigation.

Afternoon

3.41 At around 3:45 p.m. the Working Group (DH not represented) met again with the two experts to further study the FEHD Report.

Evening

3.42 TVB evening news reported that, according to a report from FEHD to LCSD the week before, larvae and pupae had been found in Tai Wan Shan and Kwun Tong. TVB also quoted ADLS maintaining that no egg or pupa had been found, that the water under the slide was not stagnant and thus not suitable for breeding bloodworms, so that human factor (人爲因素) could not be ruled out.

3.43 The Working Group meeting continued late into the evening, when DLCS and DDLS joined in. **DLCS was briefed on the FEHD Report and shown a copy for the first time.** LCSD realized that the incidents had turned into a credibility issue. At the Working Group meeting:

FEHD explained that midges at different stages of their life might not be collected from a single breeding site if it was small. The collection of eggs and larvae of the 1st and 2nd instars was difficult as they were small in size. Its interpretation was therefore based on scientific deduction from the fragmentary evidence received and by no means conclusive. The experts opined that, as no eggs and larvae of the 1st and 2nd instars were found, there was insufficient evidence to prove beyond doubt that natural breeding of midges had occurred in the microenvironment underneath the water play equipment. The following conclusion was recorded: - the filtration system of swimming pool was properly functioned and the filters could filter off any foreign objects passing through the filtration system; - there was insufficient evidence to prove beyond doubt that natural breeding of

midges had occurred in the swimming pools. *Source: Working Group meeting notes*

The Working Group also decided to hold a press conference on the following day.

3.44 That evening, the Police issued a press release clarifying that investigation by the Police on the matter was still on-going and there was no evidence to suggest that bloodworms actually bred in the water of the swimming pools.

<u>1.9.04</u> ***Morning***

3.45 Local media reported prominently the inconsistency between LCSD public statements and FEHD findings.

3.46 DLCS and DFEH and their staff and the two experts conferred before the press conference scheduled for 11:00 a.m. DLCS, DFEH, ADLS, FEHD Consultant, and the two experts attended the press conference. DLCS emphasized that LCSD had no intention to hide information about bloodworms in public pools. Initial findings of the Working Group had revealed no concrete evidence to prove that midges (搖蚊) were bred in the leisure pool in Tai Wan Shan. The expert microbiologist explained that some pupal cases had been found in the water slide there. It might be suitable for midges (搖蚊) to live for a short while. Although breeding (i.e. complete life cycle) could have occurred in that environment, there was however, no solid evidence to show that this had or had not indeed occurred. ADLS admitted that he had missed out some details of the Tai Wan Shan findings, but reiterated that water under the water slide was not stagnant.

Evening

3.47 In a radio programme, DLCS apologized for ADLS omitting information of pupal cases found at Tai Wan Shan.

HAMMER HILL ROAD SWIMMING POOL

<u>31.8.04</u> ***Afternoon***

3.48 A swimmer reported a bloodworm in the pool. LCSD staff checked and found one dead bloodworm. DDLM was alerted and instructed lifeguards to check the area near the artificial rock feature in the middle of the leisure pool outdoor. No bloodworm was found.

<u>1.9.04</u> ***Morning***

3.49 Around 8:55a.m. lifeguards found bloodworms underneath the artificial turf on the platform next to the rock feature. DLM was notified and district management staff arrived shortly after 9:00 a.m. Staff pulled away the artificial turf and found more bloodworms. District management staff notified the Principal Information Officer and CLM around 10:00 a.m. Staff cleared away the dirt and artificial turf, which was cut into pieces and kept in plastic bags. Samples of bloodworms were collected and sent to FEHD.

3.50 Around noon, after the press conference, ADLS on learning the incident, immediately advised CLM to ask district staff to call the Police officer handling the bloodworm case.

Afternoon

3.51 LCSD district staff and CLM discussed at site on how to clean up the dirt from the rock platform without contaminating the pool water, the rock platform being situated in the middle of the pool. After various attempts, district staff finally managed to collect the dirt in buckets, carried them to the side of the pool and poured the dirt into the surface channels. Shortly after 6:00 p.m. the Police arrived at the scene, having received a "999" report from a lifeguard at 5:46 p.m. that bloodworms were found in Hammer Hill Road. Meanwhile, at around 6:00p.m., the Police officer learnt of the incident from the news on television. He then received a call from DDLM about discovery of bloodworms at Hammer Hill Road. At 7:20 p.m. the Police officer arrived.

<u>2.9.04</u> ***Morning***

3.52 Media reported prominently bloodworms at Hammer Hill Road with some headlines alleging LCSD destroying evidence.

3.53 DLCS and DFEH went on air to answer media queries, with DLCS maintaining no intention to destroy evidence as all torn turf had been kept in plastic bags and clean-up of dirt was necessary to keep it from contaminating the pool. DLCS apologized once more for having created confusion over the matter.

Meanwhile, Hammer Hill Road Swimming Pool was completely closed for investigation.

Evening

3.54 LCSD issued a press release:

"A joint inspection of Hammer Hill Road Swimming Pool was conducted today by LCSD and FEHD and the Police. According to observations made by FEHD staff, the general environmental hygiene of the swimming pool compound was satisfactory, but several surface channels were found to have accumulated with organic debris. Several sites favourable to the breeding of Chironomidae have been found. Specimens of different life stages of Chironomidae were found at some locations around the swimming pool but those locations are separate from the pool's filtration and circulation systems. Preliminary examination of the specimens collected revealed about 5,000 larvae, some 300 pupae and about 30 adults. It is believed that there was natural breeding of Chironomidae in the compound."

<u>**4.9.04**</u>

3.55 LCSDHQ issued revised guidelines to districts on actions to be taken on sighting of bloodworms at public swimming pools, with the additional requirement as follows:

"-DLM should inform **DD(LS)**, respective AD, CLM, SLM(AV) and CIO of the sighting of bloodworms at the public swimming pool; **-DLMs should inform Police ... of the incident;**

-**The affected swimming pool should be closed immediately;**

-**The original environment should be protected...."**

(Our emphasis) (Previous instructions at para. 3.18)

Source: LCSD information to this Office

<u>**6.9.04**</u>

3.56 A meeting of the Working Group reached agreement that:

"...there was not sufficient evidence that bloodworms could breed or develop in normal swimming pool water. However, for special installations in swimming pools, such as water play equipment and artificial turf, where the flow of water was slow and organic matter could accumulate, bloodworms could breed. Some places within or surrounding swimming pool complexes, such as drains and manholes, could also be breeding grounds for bloodworms...."

Source: Working Group meeting notes

3.57 LCSD issued a press release later in the day:

"According to findings of the inter-departmental expert working group formed to trace the source of bloodworms discovered in some LCSD swimming pools, **certain environment in and outside the pool compounds and some special installations (such as play equipment and artificial turf) in some pools could serve as breeding ground for midges.** But current evidence does not suggest that bloodworms could actually breed in pool water. The study also confirmed that the filtration systems in those pools were in normal operation.... LCSD has invited FEHD to jointly inspect every public swimming pool. Even obscure spots such as small ring holes on manhole covers will be carefully checked to prevent breeding of bloodworms...."

4

MANAGEMENT OF POOLS

BACKGROUND

4.1 Prior to 2000, the management and control of public and private pools were the responsibilities of the Regional Council and the Urban Council. Following the dissolution of the two Councils in 2000, LCSD has taken over the management of public pools and FEHD the licensing and inspection of private pools. Two sets of regulations under the Public Health and Municipal Services Ordinance, Cap 132 set out the requirements for maintaining hygiene condition of public and private swimming pools respectively: namely the Public Swimming Pools Regulation and the Swimming Pools Regulation.

PUBLIC POOLS

Personal Hygiene of Swimmers

4.2 Section 8 of the Public Swimming Pool Regulation requires that all users of pools must go through a shower and footbath before entering the pool. Spitting, smoking and bringing food or drinks into the pools are not allowed.

Persons with known communicable diseases are not permitted to use the pools. LCSD staff is delegated with the authority to ask any person violating the Regulation to leave the pool.

Water Quality

4.3 Pool water has to go through a water treatment process involving filtration and disinfection. Any dirt or foreign matters in the water are either removed manually by lifeguards or filtered by the filtration system. Water quality is checked by testing hourly the free residual chlorine level[5] and pH value[6].

4.4 Moreover, LCSD takes water samples from pools to WSD for chemical[7] and bacteriological[8] tests before opening the pools at the beginning of the swimming season each year. Thereafter, WSD continues to conduct monthly bacteriological tests on samples from LCSD to ensure that water quality is satisfactory for swimming. In addition, DH also conducts monthly examination of water samples for presence of *Vibrio cholerae, E. coli* and total bacterial count.

Cleansing of Pools

4.5 Cleansing of public pools is by contract services. The cleansing

---

5 For pools using chlorine as sterilising agent, the minimum residual chlorine level is 1.0 ppm; and using ozone as sterilising agent, 0.5 ppm. The maximum level is 3.0 ppm.

6 pH value should be between 7.2 and 7.8

7 Items examined in chemical test include: turbidity of water, pH level, residual chlorine (free and total), total alkalinity, total hardness, colour, conductivity, chlorides, oxygen absorbed value and aluminium.

8 Coliform/100ml and *E.coli*/100ml and agar plate count/ml.

requirements, number of cleaners, service areas, schedules and standards are stipulated in the contract. **Annex 5** sets out the schedule of duties. The contractor has to provide a number of cleaners on site to attend to the changing rooms and toilets, pool deck, surface channels, drains and slopes (if any) and the pool compound. Cleaners are also required to help in gate keeping and crowd control during the peak months. In 2001, LCSDHQ briefed district staff on the cleansing requirements and procedures to enhance staff understanding of the sanitary and hygienic standards required. Each year, prior to the opening of pools to the public, LCSDHQ issues a handbook on management of swimming pools to relevant staff reminding them of the various operational details, e.g. cleanliness, water quality tests. Cleansing inside pools is the responsibility of lifeguards. They are required to clean the vertical walls of pools and clear debris in pool bottom regularly, with the automatic underwater cleaner.

PREVIOUS SIGHTING OF BLOODWORMS

4.6 The presence of bloodworms in swimming pools is rare but not unheard of. Prior to 2004, bloodworms had been discovered in three public swimming pools: Island East in August 2001, Shing Mun Valley in August 2002 and Sha Tin Jockey Club in November 2002. These were cleaned out on site and there had been no report of recurrence until the recent incidents.

PRIVATE SWIMMING POOLS

Licensing and Control

4.7 Private swimming pools are popular features in private clubs and in recent years in residential estates. Private pools must be licensed under the Swimming Pool Regulation. FEHD is the licensing authority to ensure continued compliance with the conditions[9] set out in section 6 of the Regulation. FEHD inspects these pools monthly to check their physical condition and to take water samples for tests during the period when the swimming pools are open for use. As at 31 August 2004, there were 886 licensed private swimming pools. Most of them are opened only during the summer months.

Discovery of Bloodworms

4.8 In early September, FEHD received one report of bloodworms in a private swimming pool. A large number was found spread all over the pool in a private residential estate in Tuen Mun. FEHD inspections of that pool showed satisfactory hygienic condition and no breeding ground for midges.

---

[9] Section 6 imposes requirements on the physical configuration of pools, e.g. size and materials for surfaces, presence of drains, changing room facilities and suitable source of water. One essential requirement relates to the presence of a filtration and water treatment system.

5

THE AFTERMATH

FEHD AND LCSD JOINT INSPECTIONS

5.1 Since early September, LCSD has re-focused its attention on pool environment. Between 2 September and 15 September 2004, LCSD requested FEHD to jointly inspect all 36 public swimming pool complexes to identify possible breeding sites for bloodworms and to recommend preventive measures. FEHD found bloodworms in 10 more swimming pool complexes (**Annex 6**), mostly in the vicinity of the pools, e.g. surface channels and drains. FEHD has advised preventive measures as follows:

(a) regular cleansing of surface channels and drainage outlets to prevent blockage and accumulation of stagnant water;

(b) regular cleansing of grating (covering surface channels) to prevent algal growth; and

(c) regular cleansing of manhole covers and drains to prevent accumulation of stagnant water.

LCSD SPECIAL CLEANSING OPERATIONS

5.2 All 36 public swimming pools managed by LCSD underwent thorough cleansing between 8 and 14 September 2004. The vertical walls and bottom of pools were thoroughly cleansed; so, too, the surrounding areas of pools including surface channels, drains and drain covers, manholes, flower beds and slopes in the vicinity of the pools.

5.3 Between 6 September and 31 October 2004, each public swimming pool was closed for half-a-day every week for cleansing. Frequency of bacteriological tests of pool water samples was increased to weekly for the remainder of the swimming season until 31 October. This arrangement will continue into the winter months for heated pools.

5.4 LCSD has strengthened enforcement of the requirement for persons entering the pool area to go through the footbath and shower. More staff have been deployed on guard at the entrance.

LATEST DEVELOPMENT

5.5 In early November 2004, DLCS established a Steering Committee under her chairmanship to strengthen the management of public swimming pools. Membership includes representatives from DH, FEHD, EMSD, Arch SD, WSD and

Home Affairs Department and two external advisers[10]. Four working groups[11] have been set up to examine specific areas in public swimming pool management.

5.6 In addition, LCSD will:

(a) remove or modify play equipment (potential breeding grounds) during the winter months;

(b) replace, by phases, artificial turf (used in some swimming pools) with ceramic tiles;

(c) organise refresher courses for LCSD staff on operation of the water filtration system; and

(d) organise education and publicity programmes to enhance public co-operation in maintaining the hygiene and cleanliness of public pools.

A FURTHER NOTE

5.7 Following the discovery of bloodworms in public pools, FEHD issued guidelines to its staff requiring them to pay special attention to specific areas of the

10 The Head of Microbiology, Faculty of Medicine, Hong Kong University and a Council Member of the Hong Kong Institute of Engineers.

11 Four working groups: water quality, environmental hygiene, staff training and performance management and usage of public swimming pools.

pools (e.g. play equipment, drains, drain holes) during their regular checks on private pools. On 8 September, it further issued guidance to private pool operators providing advice on prevention of bloodworms in pools and reminding them of the need to ensure personal and environmental hygiene.

6

OBSERVATIONS AND OPINIONS

GENERAL COMMENTS

6.1 On discovery of bloodworms, LCSD was under immense pressure from the media to come clean and to resolve the problem. Meanwhile, LCSD was concerned that closure of pools in the peak season for swimming would cause much inconvenience to swimmers. The situation unfortunately coincided with a dispute between LCSD and the lifeguards over employment terms and it was understandable for some to link the bloodworm incidents with the dispute. LCSD's call for Police assistance and repeated public assertions of bloodworms being due not to faulty systems but possibly to human factor (人爲因素) further complicated matters and fuelled the media's relentless pursuit for the truth. It was, therefore, no surprise that the media's evident access to the FEHD Report, LCSD's responses (para 3.42) and the discovery of bloodworms at Hammer Hill Road sparked off questions over the department's credibility.

6.2 As for this Office, our concern was for transparency in public disclosure, co-ordination amongst departments, good management and effective monitoring of public hygiene of public swimming pools. These are important

matters of public interest.

CO-ORDINATION AMONG PARTIES CONCERNED

Co-ordination of Departments

6.3 DLCS was quick to respond to the first sighting of bloodworms, in Kowloon Park. On 20 August, she called a meeting of the relevant expert departments (para 3.7). From the outset, FEHD, DH, EMSD, WSD and Arch SD had rallied to help LCSD in the investigation. We note that each department had done its part in providing prompt assistance and cooperative support to LCSD. In fact, DH had initiated contact with LCSD immediately upon learning of the incidents from the press reports on 20 August 2004. We also find that FEHD had given full and frank advice to LCSD from the pest control perspective (paras 3.4, 3.27, 3.30 and **Annex 4**)

6.4 Regarding liaison with FEHD, LCSD had invited the staff of PCAS to visit Kowloon Park on 20 August and Tai Wan Shan on 24 August to investigate the causes for bloodworms and identify possible breeding sites. LCSD's consolidated guidelines (para 3.18) to district managers on 24 August, however, only asked its staff to send samples to FEHD for identification. It did not ask for FEHD inspection of the other affected pools until DLCS and DFEH decided on 2 September to conduct joint inspections of all 36 pools.

6.5 We see LCSD as not focusing sufficiently on the possibility of

bloodworms growing in the natural environment and the need for more thorough examination of the cause of their presence. It was concerned, quite properly, over the inconvenience to the public and chaos from cancellation of bookings. The senior directorate officers were at the time also engaged in pressing commitments, e.g. organisation of the reception of the Hong Kong Olympic team's return from Athens and the impending visit of the gold medallists of the China team in early September. However, given DH's advice on public health, the FEHD findings and the keen media interest, LCSD should have been alerted to take a more balanced view about the environment of pools and alive to the need for proper public information.

Co-ordination between LCSDHQ and Field Staff

6.6 Since 20 August, LCSDHQ had issued several sets of instructions to districts on follow-up actions to be taken immediately on discovery of bloodworms. Unfortunately, after LCSDHQ had called in Police assistance on 25 August, it gave no instructions on how staff should facilitate Police investigation until 4 September 2004 (para 3.55). As a result, some district staff were not aware of the need to report discovery of bloodworms to the Police or the need to preserve the integrity of a suspected crime scene. This was the situation at Hammer Hill Road on 1 September. Having found bloodworms in the morning, district staff promptly informed LCSDHQ but was not aware of the need to contact the Police. Although ADLS gave verbal instructions to district staff in the early afternoon to inform the Police on the matter, the officer concerned was too preoccupied with finding ways to clean up the dirt on the rock platform to avoid contamination of the pool water. In the end, the Police first learnt of the incident from a lifeguard. However, DDLM did later call the Police (para 3.51). Unfortunately, this gave rise to accusations of LCSD destroying

evidence and covering up. This Office accepts that the situation was quite chaotic that afternoon (1 September) and district and pool staff had to attend to many urgent issues, e.g. cleaning up the dirt to avoid contaminating the pool water, making arrangements for bloodworms and water samples to be taken to FEHD and WSD for tests and dealing with media enquiries. We also note that pieces of the torn turf were put into plastic bags and the whole cleansing process was recorded on CCTV tape. After considering all available information, we do not find any evidence of LCSD staff deliberately destroying evidence or covering up at Hammer Hill Road.

6.7 In view of the intense media interest in the bloodworm incidents and suspicion of human factor (人爲因素) culminating in a report to the Police, we expect an acute sense of urgency and vigilance within LCSD in internal communication of key information. District staff have faithfully reported the incidents, practically blow by blow, to LCSDHQ even amidst their emergency and routine tasks on the ground. However, they have little experience in dealing with high-profile and sensitive media matters and should have extra guidance from LCSDHQ on assisting in Police inquiries.

<u>Communication Gap within LCSD Directorate</u>

6.8 There were problems of communication among LCSD directorate i.e. ADLS, DDLS and DLCS. While ADLS regularly provided DDLS step-by-step reports on progress of the investigation, he did not seem to consider the divergent views among the parties concerned sufficiently critical to warrant consultation with his seniors. DDLS submitted a one-page report to DLCS on the bloodworm incidents on the latter's return on Friday 27 August from overseas duty. DDLS was

then already aware of the FEHD Report from ADLS and had even asked for implications on the cause for bloodworms (para 3.32). Given this background, it is odd that DDLS simply accepted ADLS's brief verbal report on 30 August without taking the initiative to ask for more details on the Working Group discussions to brief DLCS more fully (see para 8.4 for LCSD response).

6.9 It is particularly odd as on 30 August, DLCS was concerned enough to respond to the TVB news report (para 3.38). This Office finds it incredible that DLCS was apparently not briefed on the FEHD Report until late evening the day after, 31 August (para. 3.43). This shows a lack of alertness for critical issues on the part of ADLS and poor judgment on the part of DDLS in not advising DLCS on the latest update, to ensure her full knowledge of the sensitive situation and to seek a line of response from her.

6.10 We note that LCSD had kept its policy bureau posted on the progress of investigation into the bloodworm incidents. However, correspondence with HAB (para 3.21) also indicated that LCSD's concern at the time was slanted towards human factor (人爲因素). This might have affected its judgment in assessing the source of the bloodworms.

LCSD APPROACH

Selective reception of advice

6.11 As early as DLCS' meeting on 20 August, both FEHD and DH had

already drawn the attention of LCSD to the possibility of "natural infestation" of bloodworms in Kowloon Park (para 3.4 and 3.7). LCSD should, therefore, have kept a more open mind over the cause of the incidents.

6.12 LCSD explained that it had been anxious to identify the **exact** source of bloodworms in its pools. It decided to seek outside help, i.e. an independent microbiologist and subsequently the Police. While we appreciate LCSD's concern for exactitude, subsequent events showed LCSD to have been somewhat selective in its approach to advice given by various parties during its investigation into the cause for the presence of bloodworms in public pools, as illustrated in the case of Tai Wan Shan.

6.13 There could be different causes for bloodworms in different pools. This was echoed by the FEHD Report. DH had pointed out that "natural inhabitation or infestation of bloodworms in the pools should be excluded before external introduction was identified as the sole source of bloodworms". Minutes of the two Working Group meetings on 28 and 31 August recorded divergent views on the possibility of bloodworms breeding in the pools.

6.14. In other words, natural causes for the breeding of bloodworms in the pools should not be ruled out before introducing external factors. Despite such continuing advice, LCSD seemed set on selective reception.

6.15 FEHD had explained its difficulty in adducing conclusive evidence as midges (搖蚊) at different stages of their life cycle might not be collected from a single breeding site if it was small. The collection of eggs and larvae of 1^{st} and 2^{nd}

instars (footnote 4, para 3.30) was difficult as they were small in size. Its interpretation was, therefore, based on scientific deduction from the fragmentary evidence received and was by no means conclusive (para 3.43). In the event, discovery of the full life cycle of midges (搖蚊) at Hammer Hill Road (para 3.54) and, on joint inspections with FEHD in September, presence of bloodworms in another eight swimming pool complexes (para 5.1 and **Annex 6**) reinforced the views of FEHD. LCSD publicly adopted FEHD's views for the first time during the bloodworm incidents only by a press release issued on 6 September 2004 (para 3.57).

6.16 Given the intense media attention on the bloodworm incidents, LCSD should have examined the divergent views within the Working Group with particular care and prudence. It should have kept an open mind about natural causes or human factor (人爲因素) during its investigation. In the face of the divergent views expressed by the various parties concerned, LCSD actions did not give us the impression of an open mind or proper consideration of the balance of probability. Instead, it cast an unfortunate conspiratorial light on the situation.

DISCLOSURE OF INFORMATION

6.17 LCSD maintained that it had kept the public informed of progress of the investigation by its three press conferences (21, 25 August and 1 September) and frequent attendances at radio programmes and responses to media enquiries. We have examined LCSD's press releases, transcripts of its interviews, press briefings and conferences. LCSD's intentions might well have been to respond quickly but the actual delivery backfired. The general impression was that LCSD had not been

sufficiently transparent in the release of information and, worse, that it had been economical with the truth. For example, bloodworms were found in nine pools, but LCSD did not always volunteer the fact about bloodworm discovery in each and every affected pool to the public and in some pools, only a notice of closure was issued. At the press conference on 25 August, ADLS explained at length the reasons for seeking Police assistance and the likelihood of human factor (人爲因素) being involved in the incidents (para 3.23). In media interviews later, ADLS maintained that the water inside the "turtle" at Tai Wan Shan was not stagnant, despite the expert microbiologist's advice (para 3.15), DH professional's view (para 3.22) and FEHD's findings (paras. 3.27 and 3.30) and LCSD's internal view of the need to be cautious in future selection of the design of water play equipment (paras 3.28 and 3.29). LCSD statements tended to mislead and did not give a balanced picture of the investigation.

6.18 The media's access to the FEHD report resulted in speculations on LCSD's attempted cover-up and accusations of its destroying evidence.

The FEHD Report

6.19 We note that FEHD had not made any public announcement or press interview about its findings, to contradict or counter-balance the LCSD bias. This is reasonable and understandable, well in line with established practice, as it roles was in giving advice to its clients. The FEHD Report to LCSD was, therefore, an internal document to a client. Media report on its contents was unexpected and unforeseen by the parties concerned. However, as the document was not classified confidential and LCSD had forwarded it to numerous parties, it was no surprise that some media members managed to get hold of it.

Progress of Investigation

6.20 While it was understandable for LCSD not to rule out human factor (人爲因素) as a possible cause, LCSD's emphasis in public between 20 August and 31 August was slanted towards human factor (人爲因素), probably tinted by its resistance to the probability of "natural infestation" (para 6.16). Its announcements were, therefore, consistently that filtration systems were functioning properly, the water quality was up to standard, natural breeding of bloodworms in pools was not possible and bloodworms were likely to be foreign objects (**Annex 3** – press release/statements). Even on 31 August when media got wind of FEHD's findings, LCSD still refused to acknowledge the possibility of natural infestation.

6.21 We note the distinct difference between the preliminary conclusion of the Inter-departmental Working Group (i.e. there **was insufficient evidence to prove beyond doubt** that natural breeding of midges (搖蚊) had occurred in the swimming pools) and the message released by LCSD to the public (i.e. there was **insufficient evidence** to show that midges (搖蚊) were bred in pools). LCSD had left out the key to the standard of proof it required. We believe that LCSD had acted out of a genuine concern not to raise unnecessary alarm over the hygiene of the public pools. However, we cannot understand why at the press conference on 1 September, with the FEHD Report already well in hand since 27 August, LCSD still maintained that water under the "turtle" at Tai Wan Shan was not stagnant.

6.22 We consider LCSD to have failed to give the public a balanced view and in the process, did detriment to its own image and credibility. It was not until

the press release on 6 September 2004 that LCSD acknowledged the other possibilities: certain environmental features in and outside the pool compound and some special installations (such as play equipment and artificial turf) could be breeding ground for midges (搖蚊). A similar statement, earlier in the process, might have saved the situation.

COVER-UP OR HICCUP

6.23 In statements on radio phone-in programmes and electronic media interviews on 31 August, LCSD still maintained that only bloodworms but not eggs or pupae had been found in Tai Wan Shan. This was contradicted, that very evening, by the TVB news report. The bloodworm incidents then turned into a credibility issue and LCSD's integrity was on the line, with media accusations. The Working Group had yet to hold its second meeting to further discuss the FEHD Report on 31 August. There seems to have been undue haste in responding to media interviews prior to definitive conclusion of Working Group discussions.

6.24 LCSD explained to this Office that the decision to attend radio phone-in programmes and electronic media interviews on 31 August had been made in haste, to clarify the TVB news report the night before (30 August) that full life cycle of midges (搖蚊) had been found in Tai Wan Shan. It also explained that during those programmes and interviews, ADLS had wanted to inform the public of the Inter-departmental Working Group conclusion that there was insufficient evidence to prove beyond doubt natural breeding of midges (搖蚊) in the pools. However, as he did not have a copy of the FEHD Report with him, he made a mistake on the number of

bloodworms and did not mention the presence of pupal cases. Given the intention of the interviews was to give a "correct picture" to the public on the findings at Tai Wan Shan, we find it inconceivable that ADLS was not fully familiar with the facts. This is particularly strange since the FEHD Report of 27 August (**Annex 4**) had been quite explicit about the findings and by 31 August, LCSD members should have had enough time to digest the findings and rehearse ready responses. It is even more surprising that ADLS claimed not to have consulted DLCS or even DDLS on the line of response (para 6.9). We find no evidence of a deliberate cover-up on the part of ADLS as he reported progress regularly and faithfully. However, this episode reflects his poor judgement and lack of experience in meeting the media and informing the public. It also underlines a problem of communication within the senior directorate in LCSDHQ (paras 6.8 and 6.9).

HYGIENIC CONDITION AT POOLS

6.25 After the joint inspections between 2 and 15 September 2004, FEHD discovered more bloodworms in another eight swimming pool complexes, mainly in the surface channels and drains (**Annex 6**). In one case, larvae were found in the keyhole of a manhole cover. There is, therefore, no place for complacency about hygiene condition in public swimming pools.

6.26 To recap, there are clear requirements for public hygiene and established practices for water quality assurance (paras 4.2 to 4.5). However, during our visits to Tai Wan Shan, Hammer Hill Road and Kowloon Park, we observed certain points on the maintenance of hygienic condition of pools that should be

addressed.

Cleansing of pools

6.27 According to LCSD, daily routine cleansing of pools and pool deck should be conducted during the two one-hour session breaks when the pools are cleared of swimmers. However, from our interviews with district staff, we note that during the summer months when usage is high, cleaners do not have an hour for the full range of cleansing duties. The focus of their attention would then be the more obvious areas, such as toilets and changing rooms. Cleansing of the pool deck and surrounding areas are often confined to clearing debris found on the deck and spray washing the deck and surface channels. There is simply not enough time for thorough cleansing of these areas, e.g. taking out the gratings of surface channels for cleaning and checking of any blockage. However, this is crucial and should be covered by additional cleansing operations after the closure of pools.

6.28 Lifeguards carry out cleansing of the pool itself, supposedly during session breaks. We note that in the summer months, the pool lanes are often booked for swimming classes even during the session breaks. This makes cleansing of pools impossible. It also means insufficient time for cleansing of any play equipment and artificial features inside the pools.

Swimmers Etiquette

6.29 Public swimming pools are for public enjoyment. In popular pools, attendance is often at the maximum capacity. The need to keep the place clean and

hygienic is self-evident. The Public Swimming Pool Regulations aim to ensure that the pools are maintained at an acceptable hygienic standard. Enforcement by LCSD **and** compliance by users are equally important.

6.30 We note from public complaints in radio phone-in programmes and to this Office since mid-August that pool staff have not always been vigilant or stringent in requiring swimmers to take a shower and footbath before entering the pool. There were also complaints on air of faecal discharge by swimmers (probably small children). All these point to the need for greater vigilance and more rigorous enforcement on the part of LCSD.

6.31 Meanwhile, they are also an indictment on inconsiderate users who ignore public hygiene. They forget not only their civic duty but also the risk to their own health. Swimmers have a social obligation to keep the pools clean, both for other users' enjoyment and for their personal hygiene. Parents have an additional responsibility to train young children in good toilet habits and in social ethics.

A FURTHER NOTE

6.32 During our investigation, we note from correspondence between LCSD and DH that water samples collected at Kowloon Park on one occasion were left standing in the sun for a few hours before being taken to DH for testing (**Annex 3**). On another occasion, water samples were taken during cleansing of pools. We consider this to be due to inadequate training in sampling techniques. This should be rectified.

7

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

7.1 We find that LCSD lacked impartiality in its own investigation into the bloodworm incidents and was selective in the reception of views (para 6.20). However, we find no evidence of a cover-up on the part of ADLS. Nor is there any deliberate attempt to destroy evidence at Hammer Hill Road.

7.2 We consider the bloodworm incidents to have been an administrative and public relations fiasco on the part of LCSD. We see this as a consequence of:

(a) insufficient focus on the possibility of natural occurrence of bloodworms and the need for more thorough examination of the cause of their presence in public swimming pools (para 6.5);

(b) absence of an open mind on the cause of bloodworm presence, coupled with a natural preference for "favourable" advice (paras 6.11 and 6.16);

(c) a gap in communication among directorate members (paras 6.8 and 6.9);

(d) undue haste to respond to media requests (paras 6.23 and 6.24);

(e) inexperience in media relations and public information (paras 6.20 to 6.24);

(f) insufficient transparency in the release of information (para 6.17);

(g) inadequate guidance from LCSDHQ to district and pool staff on handling crisis situations, leading to blunders and inconsistencies that put LCSD in a poor light, especially over the incident at Hammer Hill Road (para 6.6);

DLCS sees this as due to ADLS's view of the cause of bloodworms in public swimming pools not being by "natural infestation" (para 8.4).

7.3 It was unfortunate that the bloodworm incidents coincided with a spell of the LCSD dispute with its lifeguards. Coupled with blunders in denying (or, as claimed, forgetting) findings in the FEHD Report and handling of evidence at Hammer Hill Road, LCSD had succeeded in turning an operational matter into a credibility crisis.

7.4 On the other hand, we find **FEHD** to have done its duty in promptly responding to LCSD's call for assistance and consistently providing frank and professional advice (paras 6.3, 6.11 and 6.15). FEHD action was timely and appropriate. FEHD had also been proactive in learning from the experience: issuing guidelines to staff and circularising to operators of private swimming pools in early September to draw their attention to the need for vigilance in complying with the required pool and personal hygiene standards (para 5.7).

RECOMMENDATIONS

7.5 Since 2 September, LCSD has commendably carried out a range of remedial measures to raise the hygienic condition of public swimming pools (press statement of 6 September, paras 5.1 to 5.4). We also note that DLCS had already held the first meeting of the Steering Committee on the Management of Public Swimming Pools on 2 November (para 5.5).

7.6 Against this background, we make the following recommendations in the hope of assisting DLCS and her staff:

Hygiene of Public Swimming Pools

(a) increase the sampling frequency for bacteriological and chemical examination of pool water (including the heated pools during winter months), especially during the peak

months (paras 5.3 and 5.4);

(b) continue with the half-day closure of swimming pools (for heated pools even during winter months) to ensure thorough weekly cleansing of the pool compound and surrounding environment (paras 5.3 and 6.27);

(c) review the schedule and specifications for cleansing operations, taking into account the design of pools and ancillary features e.g. artificial turf and play equipment (para 5.6);

(d) review frequency and requirement for cleansing of pool walls, pool bottoms (including false bottom) and pool equipment inside the pools, surface channels, drainage outlets and manhole covers (paras 5.1 and 5.2);

(e) put in place a monitoring programme of follow-up inspections to ensure that cleansing work has been carried out satisfactorily (para 4.6);

(f) consider, from time to time, seeking FEHD's support and assistance in detecting and preventing possible breeding of insects on site (para 5.1);

(g) provide training to frontline staff to strengthen their

knowledge in public hygiene, pest control and sampling techniques (para 6.32);

(h) review the current booking arrangements to avoid over-booking of swimming lanes during session breaks (para 6.28);

(i) review and, if necessary, revise the design of pools under planning, especially drains and play equipment in and near pools (para 5.6);

(j) confer with DH on whether the hygiene standard at public swimming pools should be raised (para 6.25);

Internal and External Communication

(k) enhance two-way communication between LCSDHQ and frontline staff e.g. through discussion groups or refresher course, for a better understanding of the rationale and priorities in the management of swimming pools (para 6.6);

(l) review the approach and mechanism within LCSD on deciding lines of response for release of information to the public to ensure accuracy and transparency (paras 6.17, para 6.20 to 6.24);

(m) provide media and crisis management training to LCSD senior managerial and directorate staff to enhance their ability to handle media relations and crisis situations (including assistance in Police inquiries); and

Public Education

(n) publicity and public education programmes on swimmer etiquette and the need for proper hygiene in the use of public swimming pools (paras 6.30 and 6.31).

8

FINAL REMARKS

LCSD COMMENTS

8.1 LCSD has accepted all our recommendations, some of which have already been implemented while there are concrete plans and time frame for implementing the rest. The salient points of DLCS' comments on the draft are set out below.

8.2 On the advice given by the expert micorbiologist (para 3.15), LCSD claimed that staff present at the expert's visit to Tai Wan Shan on 24 August had no recollection of his opinion. DLCS has provided statements from four officers to support this claim. We have found from the statements that one of the officers did recall the expert expressing some concern on water circulation at the "turtle" as some of the holes were tiny (see para 8.6).

8.3 LCSD also claimed that none of its staff present at the brief meeting

prior to the press conference on 25 August could recollect the suggestion made by the DH's representative (para 3.18).

8.4 On our observations in the draft report, DLCS has made the following points:

(a) There was a gap in communication among the directorate officers in LCSD in presentation of the FEHD findings. This adversely affected the disclosure of the information to the public.

(b) ADLS thought that the FEHD Report had been sufficiently attended to and the conclusion endorsed by all at the Working Group meeting on 28 August. He did not see any matter so sensitive or critical as to warrant the personal attention of DDLS and DLCS.

(c) The senior directorate was convinced by the "adamant view" of ADLS, *inter alia,* on the bloodworms not being by natural causes and on things going in the right direction.

(d) Neither DDLS nor ADLS had brought to her attention the divergent views on the FEHD Report.

(e) On updates, she had received a one-page report from DDLS on 27 August. She had taken the initiative to call ADLS on 29 August when the latter verbally advised her that the investigation was still continuing and enhancement to hygienic condition in swimming pools already made. On

30 August, she had asked CIO to check with ADLS on the factual accuracy of the press release to be issued in response to the TVB news coverage that evening.

(f) She had heavy and important commitments so that she could not attend personally to the bloodworm incidents. Had she been alerted, she would have intervened and taken a more objective approach to the FEHD Report. DDLS' attention was also directed towards these commitments, including organisation of the reception for the Hong Kong Olympic team returning from Athens on 31 August and the visit of the China gold medallists on 6 to 9 September. However, the visit of the China team and the diving performance scheduled at Kowloon Park did not affect their decision-making process in relation to the bloodworm incidents.

(g) She regretted the omission of details in media appearances by one officer on the FEHD findings. However, such findings were not conclusive evidence of natural breeding. The findings at Hammer Hill Road were key to the conclusion that certain environmental features in or outside the pool compound and some special installations in the pool might have served as breeding ground for midges (搖蚊).

COMMENTS FROM OTHER DEPARTMENTS

8.5 We have sought also comments from FEHD, DH, EMSD, WSD, Arch

SD, the Police and the independent experts on our draft report. All, except the expert biologist who volunteered assistance to LCSD, have commented on our draft report. We have incorporated their comments where appropriate.

FINAL REMARKS FROM THE OMBUDSMAN

8.6 The Ombudsman notes the LCSD staff's apparent corporate amnesia over the expert's verbal advice made at Tai Wan Shan on 24 August and DH representative's suggestion just before the press conference on 25 August. We also note that one LCSD staff member did recollect the expert expressing concern over the water circulation at the "turtle" as some holes were tiny (para 8.2). We see this as consistent with the view of the expert microbiologist that water could be trapped and retained inside, thus becoming stagnant and suitable for breeding bloodworms. On the balance of probability, we believe that the expert did express concern about the possible stagnation of water in the "turtle". On DH's suggestion to LCSD, we note from copies of e-mail exchanged between the DH representative and PCAS of FEHD that, in the morning of 25 August, the two had discussed the possibility of weak wind and high temperature being a contributing factor to the outbreak of bloodworms in pools. As DH had all along advised LCSD to consider natural causes prior to deciding on external factors (para 3.7), again the probability is that the DH representative had given the verbal suggestion on 25 August just before the press conference but this was ignored or not properly registered.

8.7 The Ombudsman notes DLCS' remarks on the gap in communication among the directorate officers. We also note that inexperience with handling matters

of intense public interest, and anxiety to present a favourable public image for the department might have clouded the ADLS' judgment. However, The Ombudsman considers the approach taken by LCSD in the investigation into the bloodworm incidents a reflection of the department's overall inadequate crisis management.

8.8 On the response to the TVB news report on 30 August, attendance at radio phone-in programmes and interviews with the electronic media in the morning of 31 August, we are surprised that DLCS should have relied just on the CIO checking with ADLS on the factual accuracy of the press release and on the judgment of ADLS. He might be a professional expert on leisure services and on swimming pools but here, the issues were media relations and public information. Furthermore, those media appearances had been cleared with DDLS or DLCS. In this case, DLCS had directed the prompt response to the media but somehow stopped short of ascertaining the full facts about the latest development in the investigation and of giving him any steer whatsoever. There seems to have been a lapse in judgment also on the part of DLCS at this juncture. We consider that it would have been better to await definitive conclusion to the Working Group discussions before further media releases.

8.9 The Ombudsman welcomes the positive response of LCSD to our recommendations and commends its prompt action in implementation.

8.10 The Ombudsman expresses sincere appreciation for the cooperation and assistance rendered by LCSD, FEHD, DH, EMSD, WSD, Arch SD and the Police in the course of this investigation.

---- End ----

Office of The Ombudsman

Ref. OMB/DI/130

December 2004

ANNEXES

Annex 1
(Para 3.1)

Food and Environmental Hygiene Department

Pest-in-brief – Issue No. 4: Blood worms

Midge Photo 1 | Photo 2

Background

Blood worms are larvae of midges belonging to the family of Chironomidae. It has been reported that these worms are found in swimming pools and this paper serves to provide some introductory remarks on this insect as well as its prevention and control.

Insect Biology

2. The family Chironomidae is grouped under the Order of Diptera which includes housefly and mosquito. The insect undergoes complete metamorphosis with life cycle divided into four stages, i.e. egg, larva, pupa and adult. Although the adults are somewhat mosquito like in appearance, they do not have piercing and sucking mouthparts and therefore non-biting. They often occur in huge swarms, usually in the evening. They are attracted by light so light traps could be used for the control of adults. However, this behaviour also implies that lights concentrate the insects near people at night and pose a nuisance. Adult chironomids are short-lived, reported to be about a few days. Their flight ability is generally weak and they disperse mainly by passive means like wind, vehicles, etc.

3. After mating, female lays eggs in water in masses. Under favourable condition, the eggs hatch in about two to three days. The larvae live about four weeks and then pupation follows. Pupae usually last about two days before adults emerge.

4. Most of the chironomid larvae are aquatic and red in colour because of the presence of haemoglobin in their blood. However, a few species are green or yellow. Polluted water apparently favours their multiplication and emergence. Most of them are detritus feeders. They eat tiny particles of organic matter together with some algae. The larvae can be found in large number when the water is polluted by organic matters.

Local Situation

5. Members of this family are quite common in Hong Kong. However, there is little study and publication about the distribution and biology of the local fauna. Larvae have been collected at many of our streams which are polluted by organic matters.

Public Health Importance

6. The adult midges lack piercing and sucking mouthparts. They are unable to bite and are not regarded as an important disease vector. However, the midges can induce allergic diseases.

Control Methods

7. Adult midges resting in vegetation, shaded sand traps, indoor environment, etc. can be knocked down by insecticidal aerosol. Unlike mosquito larvae, they do not come to the surface for air but obtain dissolved oxygen from the water. So, larvae cannot be suffocated by means of malarial oil. Insecticides and larvicides such as B.t.i. can provide better control against the larvae.

Advice to the Public

8. As the larval and pupal stages of the midges are aquatic, source reduction and water management are regarded as the fundamental control measures. Drains should be checked regularly to prevent accumulation of water. Larvicidal fish is a possible biological agent when the water bodies cannot be removed.

9. As the adults are attracted by light sources and they are most active during sunset, the nuisance can be abated, to a certain extent, by avoiding the use of unnecessary lights in this period of time.

10. Adult midges proofing measures such as installation of protective nets and screens of small mesh can ward off its intrusion into indoor environment.

Pest Control Advisory Section

2004 | Important notices **Last revision date: 01-09-2004**

(source : http://www.fehd.gov.hk/safefood/pest-blood.html)

Annex 2
(Para 3.2)

LIST OF POOLS AFFECTED BY BLOODWORMS

Date of Discovery of Bloodworms	Swimming Pool	Location of Bloodworms Presence
4, 5, 12, 18 and 20.8.04	Kowloon Park	indoor leisure pool
21.8.04	Tseung Kwan O	teaching pool
23.8.04	Kowloon Park	outdoor leisure pool
	Tai Wan Shan	fun pool
24.8.04	Tai Wan Shan	bottom of the play equipment
	Kwun Tong	paddling pool
25.8.04	Pao Yue Kong	toddlers' pool
	Shing Mun Valley	leisure pool; filter of vacuum cleaner
	Kwun Tong	secondary pool; sieves mounted at backwash drains of filter tanks
26.8.04	Pao Yue Kong	beside play equipment in children's fun pool
	Shing Mun Valley	inside play equipment
27.8.04	Kwun Tong	paddling pool
28.8.04	Jockey Club Yan Oi Tong	water returning tank
1.9.04	Hammer Hill Road	outdoor leisure pool near artificial rock feature
2.9.04	Shing Mun Valley	on top of artificial waterfall next to leisure pool
3.9.04	Kennedy Town	secondary pool

Annex 3
(Para 3.2)

OUTLINE ON SEQUENCE OF EVENTS

KEY TO ABREVIATIONS

HHRSP	**: Hammer Hill Road Swimming Pool**
KPSP	**: Kowloon Park Swimming Pool**
KTSP	**: Kwun Tong Swimming Pool**
PYKSP	**: Pao Yuk Kong Swimming Pool**
SMVSP	**: Shing Mun Valley Swimming Pool**
TKOSP	**: Tseung Kwan O Swimming Pool**
TMYOTSP	**: Tuen Mun Yan O Tong Swimming Pool**
TWSSP	**: Tai Wan Shan Swimming Pool**

Date	Event	Press Release and/or Interview Summary
4 & 5. 8.04	At **KPSP**, complaints of bloodworms received - Pool management inspection confirmed bloodworm presence - Water test conducted - Pool cleansing with underwater automatic cleaner	
12.8.04	At **KPSP**, further complaint of bloodworms received	

Date	Event	Press Release and/or Interview Summary
	- Pool management inspection found a few bloodworms - Free residual chlorine level increased to 1.5ppm	
18.8.04	At **KPSP**, repeated complaints of bloodworms in indoor pool received - Pool management inspection confirmed bloodworm presence - Free residual chlorine level increased to 3ppm **EMSD action** - Filtration plant checked and found in order **LCSDHQ** received press enquiry	
19.8.04	**KPSP** received further press enquiry **Pool management action** - Water sample to WSD and DH for testing - Sample of bloodworms to FEHD **FEHD action** - Inspection confirmed specimens to be 11 larvae and 2 adult midges - Advised LCSD midges being not harmful to humans but presence suggesting high concentration of organic matters, hence unsatisfactory water quality **LCSDHQ** and **FEHD** agreed on line of response to media inquiry	

Date	Event	Press Release and/or Interview Summary
20.8.04 Morning	Bloodworm in **KPSP** attracted front-page report in *Apple Daily* **LCSDHQ action** - DLCS agreed to hold press visit-cum-briefing - Media briefing at noon; ADLS demonstrated cleansing operation and general pool operation e.g. testing of water quality - Reporters found bloodworms in indoor leisure pool during press visit **KPSP management action** - Nets placed in inlet of secondary pool around 6:00p.m. trapped over 20 bloodworms - Super-chlorination of main and secondary pools up to 3ppm **LCSDHQ action** SLM(Aquatic Venues): - sought verbal advice from DH on health impact of bloodworms in pool - e-mailed to all district managers on discovery of bloodworms in KPSP with request to step up cleansing	- In a radio phone-in programme, ADLS explained : • LCSD had asked EMSD to check filtration system • foreign objects might have fallen into water • hence not an issue about water quality - In the press briefing, ADLS said : • LCSD had taken immediate action on complaints of bloodworms - cleaning up bloodworms and enhancing disinfection of pool • EMSD checks had confirmed both sterilization and filtration systems operating normally • LCSD had submitted specimens to FEHD for examination • Chironomidae not harmful to humans • LCSD had stepped up daily cleansing and anti-mosquito operations at the pools

Date	Event	Press Release and/or Interview Summary
	and to undertake preventive measures to ensure hygiene condition was up to standard **FEHD** memo advice after visit to KPSP - No obvious breeding ground found but vinyl sheet above platform (where construction works were underway) and drains at side pools might encourage breeding of midges - Adult midges found at the side of main pool - Suggested preventive measures such as regular inspections to ensure all drainage system, including sewer, free from organic matters (as bloodworms proliferated in choked drains and stagnant water) **DH**'s memo advice - (i) Larvae not harmful but presence of bloodworms indicated water quality not satisfactory, with high concentration of organic content possibly caused by faecal contamination - (ii) To empty pool water for thorough cleansing as prescribed by World Health Organisation guidelines before re-opening to the public ADLS convened urgent **inter-departmental meeting** with	

Date	Event	Press Release and/or Interview Summary
	FEHD, EMSD, DH and WSD in evening - DLCS chaired with DDLS and ADLS attending - DH representative cautioned prudence to protect public health and close the pool immediately - Deliberated four hours over closure of KPSP for thorough inspection before LCSD agreed to closure - Meeting agreed to hold press conference to inform public of the closure	
21.8.04	Bloodoworms in KPSP attracted front-page coverage in *Apple Daily*. Other newspapers also widely reported the news At **KPSP** Indoor main, leisure and diving pools closed. Outdoor pools still open **EMSD action** - Pool drained for thorough checking of filtration system for indoor main, leisure and diving pools **Pool management action** - Cleansing of pool side surface gutters (completed on 26/08)	- LCSD press conference attended by DH (also representing FEHD), EMSD and WSD was held to explain pool closure. ADLS said : • decision had been taken after inter-departmental meeting in the evening before • LCSD had endeavoured in vain to identify cause of bloodworms • would drain away pool water for thorough inspection of sand trap and water filtration system

Date	Event	Press Release and/or Interview Summary
	DH advised LCSD - 3 of 8 water samples from KPSP on 19.8.2004 had bacteria count above 200 per ml - LCSD to adopt prudent approach, step up disinfecting immediately and then repeat water testing **KPSP management** replied DH - Sample taken on 19.8.2004 might have been contaminated as samples had been left standing under the sun for hours before they were sent to DH. Undertook to provide fresh samples for testing - Conducted super-chlorination of other pools and raised residual chlorine level to 3ppm **TKOSP** found one bloodworm in teaching pool in the afternoon - Sample sent to FEHD	
22.8.04	Media reported on sudden closure of KPSP indoor pools to find cause for bloodworms **EMSD action at KPSP**	

Date	Event	Press Release and/or Interview Summary
	- Removed sand and activated carbon to check tanks of filtration system at KPSP but found no bloodworm **LCSDHQ** instruction to staff - Maintain chlorination level for outdoor pools at 3ppm during operation and 5ppm after closure, pH level not to exceed 7.6 until water quality report was available	
23.8.04	At **KPSP** lifeguards found bloodworms in outdoor leisure pools (under waterfall) in the morning **Pool management action** - Pools closed for thorough inspection and cleansing - Headwall blocks of main pool removed for cleansing of drain channel underneath - Samples of bloodworms, sand and activated carbon and water sent to FEHD, DH and WSD for examination - Arch SD requested to carry out urgent improvement works on surface channels to suppress growth of midges at pool **EMSD action** - Inspected outdoor pools filtration system **Inter-departmental Working Group meeting**	

Date	Event	Press Release and/or Interview Summary
	- Discussed appropriate procedures to follow in case bloodworms were detected in more pools and measures to enhance personal hygiene of swimmers **LCSD HQ actions** SLM(Aquatic Venues): - Issued instruction to districts on procedures when bloodworms were found in pools - Reminded pool management to strictly require swimmers to pass through shower bath and footbath - Instructed venue staff to place small net behind cover of inlet valves to see if bloodworms came from within or outside pools ADLS: - Contacted an expert microbiologist, who agreed to provide assistance At **TWSSP** lifeguards found bloodworms in a paddling fun pool in the afternoon **Pool management** - Fun pool drained between 2:00 - 4:30pm to check filtration system to find the cause	

Date	Event	Press Release and/or Interview Summary
	- Staff informed officer-in-charge of bloodworms oozing out from base of water slide (“turtle”) in middle of the pool - Bottom of “turtle” cut open for inspection and more bloodworms came out - Staff took samples of water and bloodworms - DLM alerted and made initial report to CLM and c.c. to ADLS at 5:45 p.m., suggesting possibility of human factor as she had checked the pool the day before and found hygiene condition to be in order. Also reported that reporters were at the scene taking photos of the water slide - DLM arrived at around 8:30p.m. Water slide flushed, and bloodworms found coming out intermittently from base of “turtle” - DLM made verbal report to ADLS, followed by e-mail report about 10:30 p.m. - DLM suspected a nest of bloodworms hiding at base of equipment, measuring about 2.5m x 4m. Pool management could not wipe out the bloodworms without moving equipment. DLM suggested asking Arch SD and EMSD to inspect equipment next morning and check the reasons for bloodworms at equipment base and	

Date	Event	Press Release and/or Interview Summary
	recommended lifting up play equipment to trace the nest and disinfect the area	
24.8.04	News of bloodworms at TWSSP reported in the media and closure of whole KPSP At **KPSP** - All pools closed for complete investigation of source of bloodworms - Expert microbiologist visited KPSP - Expert informed ADLS that he could not make a definite conclusion on the cause of bloodworms and considered the possibility of the filtration system being infested appeared to be low. However, the pool floor covered by a movable platform and scum gully underneath the starter platform could accumulate debris and organic matter At **KTSP** - Pool staff found a few bloodworms in paddling pool - Pool management closed pool for investigation - Samples sent to FEHD At **TWSSP**	

Date	Event	Press Release and/or Interview Summary
	- Pool management met Arch SD and supplier of the play equipment - Supplier requested to remove water play equipment including "turtle" and "whale" (another play equipment nearby) in the evening after close of operation. - Samples of bloodworms collected from bottom of "turtle" and sent to FEHD for examination - DH informed of discovery of bloodworms under "turtle" **DH** contacted ADLS - Expressed concern over "turtle" being suspected to be a breeding site for bloodworms - Advised LCSD : • to inspect all public swimming pools with features or structures having design capable of breeding midges • to take remedial steps including removing such features • not to re-open the pool • "turtle" not to be put back immediately • "turtle" to be removed permanently if confirmed a breeding ground Expert microbiologist visited Tai Wan Shan - Expert informed ADLS that it was possible that the bottom of the water slide contain a puddle of relatively stagnant water.	

Date	Event	Press Release and/or Interview Summary
	The presence of air holes in the structure could allow midges to enter the hollow space and breed inside the waterslide. As similar play equipment was not installed in the Kowloon Park, there might be different reasons for bloodworms gaining access to these two pools. In view of the presence of an identifiable cause at Tai Wan Shan paddling pool, LCSD should immediately look for similar equipment in other swimming pools. They should either be thoroughly examined, cleansed or dismantled if necessary (see LCSD response to this at para 8.2 of report) Expert biologist - Offered to assist in investigation which was accepted by LCSD **LCSDHQ** instructions to districts - Issued instructions to district management to check water play equipment and report irregularities to HQ - Consolidated guidelines to district management : • to enforce section 8 of Public Swimming Pools Regulations to require swimmers to take pre-swimming shower • to monitor water quality and hygiene	

Date	Event	Press Release and/or Interview Summary
	• to mount fish nets at pool outlets to monitor bloodworms • to follow certain procedures upon detection of bloodworms **LCSDHQ** senior staff meeting in the evening - Noted preliminary investigation at KPSP showed that pool water and filtration system could not be breeding ground for bloodworms - they were likely to be "foreign objects" - Noted : media reporters had known of bloodworms in earlier than LCSDHQ - Decided: Police investigation might help to detect causes other than biological or environmental - DDLS acting as DLCS subsequently contacted a Deputy Commissioner of Police for assistance **TWSSP** in the evening and into the early morning of 25 August - LCSD, Arch SD and supplier removed the "turtle" - Live and dead bloodworms found at the joint between "turtle" and pool bottom - Pool thoroughly disinfected - Samples of bloodworms and water taken to WSD, DH and FEHD for examination	

Date	Event	Press Release and/or Interview Summary
25.8.04	Many newspapers carried news of bloodworms in more public pools (TWSSP and KTSP) **Police** - Agreed to investigate the incidents **LCSDHQ action** - Site visits to KPSP and KTSP with expert biologist before press conference - DDLS emailed Home Affairs Bureau: (a) further discovery of bloodworms at KTSP; (b) found two academics who were able to say that the swimming pool environment was not conducive to breeding of bloodworms; (c) occurrence of bloodworms at pools one after another, could not rule out human factor, therefore sought Police assistance; and (d) press conference to be held and (c) will be mentioned. Morning at **KTSP** - Before opening of pools, life guards found a few bloodworms in secondary pool	- Press conference (attended by DH, WSD, EMSD and the two experts) held to explain joint efforts to trace source of bloodworms in KPSP, KTSP and TWSSP - ADLS explained : • LCSD together with several departments and professors had inspected pool filtration systems and checked water • Inspection of filtration and sterilization systems in those pools had found no bloodworms or eggs - Expert microbiologist advised : • Pool environment was not particularly suitable for eggs to hatch into bloodworms - Expert biologist commented : • Circulating water, constantly filtered, was unlikely to allow growth of bloodworms in swimming pools • Bloodworms were not generated from the pools but were "foreign objects" - ADLS said : • Filtration system was in order and water samples were up to required standard • After consolidating views from experts, LCSD did not exclude the possibility of bloodworms being brought into pools from outside

Date	Event	Press Release and/or Interview Summary
	- Bloodworms also found at backwash water outlets of filtration system - Pool closed for detailed investigation **DH** verbal suggestion to LCSD just before press conference - High temperature, very weak wind and poor air quality in the previous week could have been the cause or contributing factor for the breeding and hatching of midges in pools. This, together with poor circulation of water under the play equipment in TWSSP, further suggested that natural infestation of bloodworms in pools and especially shallow water was possible (see LCSD response to this at para 8.3 of report) Bloodworm discovery in other pools - One bloodworm found in leisure pool of SMVSP. Pool not closed as no further bloodworm was detected - PYKSP closed for investigation on discovery of a small number of bloodworms in fun pool **FEHD** advised by memo - 31 larvae and 3 adults of the family of Chironomidae found in samples from TWSSP fun pool	• LCSD had reported matter to the Police for investigation • Public should take thorough shower before entering the pools

Date	Event	Press Release and/or Interview Summary
	DH advised KPSP management - One of the samples taken on 23 August still had bacteria count of 490, despite stronger chlorination	
26.8.04	Local media widely reported Police to investigate **KPSP management** e-mailed to DH - Explained that samples on 23 August might have been contaminated due to staff cleansing pool waterfall feature immediately after bloodworm discovery **PYKSP** management found more bloodworms - Pool cleansing completed and sand and carbon in filter tanks refilled - Fun pool drained - 20 bloodworms found after flushing bottom of play structure at fun pool **SMVSP** management found more bloodworms - A special clean-up operation of 5 pieces of water play equipment after opening hours found 8 bloodworms inside "boat slide" - Thorough cleansing of equipment followed by overnight	- In a radio phone-in programme in the morning, ADLS said : • After KPSP had been drained, the two experts had examined the filtration system and found nothing wrong • Regarding KTSP, bloodworms could get into filtration system from outside without being trapped by the sand tank or carbon tank • Human factor was suspected and matter had been referred to Police • People urged not to vandalise

Date	Event	Press Release and/or Interview Summary
	super-chlorination of pool water **FEHD** memo to PYKSP management - Samples had 8 larvae. Biologically, they could breed in swimming pool but FEHD could not confirm source **FEHD** e-mail to TWSSP management - Plastic bag: 9 larvae in the bottles, 3 adults and 22 larvae - Poor water circulation at base of "turtle" provided environment for growth of larvae - Shallow water trapped inside the "turtle" at the fun pool also allowed rapid evaporation of free residual chlorine, resulting in possible growth of algae when the chlorine level is low, providing food for larvae At **LCSDHQ**, DDLS e-mailed ADLS - "This seems not related to human factor. We must improve the situation. Please advise on the way forward." - ADLS asked CLM to suggest improvement measures	
27.8.04	**Action at KPSP**	

Date	Event	Press Release and/or Interview Summary
	- EMSD reported that indoor pools filtration system had been completely cleansed and inflow of fresh water commenced - Arch SD carried out improvement works to waterfall discharge outlet for outdoor leisure pools to provide access for routine cleansing - targeted completion by 30.8.2004 More bloodworms found at **KTSP** - A few bloodworms sighted in paddling pool - Pool drained for thorough cleansing - Pool management reported to Police **LCSDHQ** in the morning - CLM e-mailed to ADLS: "... enclosed and large-based design water play equipment at TWSSP would likely cause stagnant water which provides a good environment for growth of mosquitoes ... we/Arch SD should be cautious in selecting suitable design of water play equipment for swimming pools in future." **LCSDHQ** afternoon	

Date	Event	Press Release and/or Interview Summary
	- DDLS briefed DLCS, returning from overseas duty, on bloodworms investigation, request for Police assistance and expert opinions on the incidents **FEHD** - Reported ("FEHD Report") to ADLS in late afternoon (***Annex 4***) At **LCSDHQ**, ADLS - Immediately passed FEHD report to the two experts and called a meeting to discuss the findings - Forwarded the report to regional CLMs asking them to check whether water underneath similar play equipment as that in TWSSP was stagnant and whether this created an environment for growth of bloodworms - Copied e-mail to DDLS and two other ADLSs DDLS e-mailed to ADLS - Asked for implications of FEHD Report in respect of causes of bloodworms.	
28.8.04	At **LCSDHQ**, ADLS replied to DDLS - FEHD would like to continue culture of KPSP samples until following Monday. That would affect re-opening of	

Date	Event	Press Release and/or Interview Summary
	KPSP - Would meet with all parties concerned including the two experts that morning at KPSP to assess the implications ADLS held **inter-departmental meeting** in the morning - DH, FEHD, WSD, EMSD and the two experts attended to discuss FEHD Report and KPSP re-opening - As complete life cycle of bloodworms was not found, meeting initially considered that evidence not sufficient to prove beyond doubt that pool the breeding ground for bloodworms - Further meeting to be held to discuss Afternoon, at **LCSDHQ** - ADLS e-mailed to brief DDLS on discussion above - Experts advised that as bloodworms were found in pools just before closure, presence of bloodworm in one out of 36 samples was normal - FEHD would continue to culture the sand and carbon and advise LCSD on outcome the following Monday - Water samples to be sent to WSD and DH for testing on 30 August for results by 2 September	

Date	Event	Press Release and/or Interview Summary
	At TMYOTSP - 3 bloodworms found - Pool still open as few bloodworms found	
30.8.04	**KPSP management action** - Water samples delivered to DH and WSD for testing before re-opening pool **TVB news** - Design of waterslide in TWSSP resulted in breeding of bloodworms - Police investigation found full life cycle of bloodworms in sample - On KPSP, no conclusion whether bloodworms were caused by natural or human factor **LCSD** - DLCS and CIO conferred over phone to formulate a press statement to clarify TVB news report - CIO checked with ADLS for accuracy - DLCS instructed districts to step up vigilance at swimming pool deck, e.g. hiring more security personnel to ensure swimmers take shower and foot baths before	- In response to TVB news report, LCSD issued press release: "Water samples sent for tests proved that the water quality there was up to standard. There is no evidence that bloodworms were bred in the pool. Investigations conducted by LCSD on bloodworms in some public swimming pools were still underway and findings will be announced as soon as when available."

Date	Event	Press Release and/or Interview Summary
	entering pools	
31.8.04	Many local papers carried reports on TWSSP water slide suspected of causing bloodworms in public pools. Some quoted LCSD as stating cause still not known, only small number of bloodworms found in TWSSP and investigation still on-going **At LCSDHQ** - Received media enquiries on TVB report - ADLS attended RTHK and Commercial Radio HK "phone-in" programmes and gave electronic media interview in the morning At **KPSP** - WSD reported 5 of 8 water samples found unsatisfactory with excessive agar plate count and in 2 of these 5 samples Coliform organism. - Pool management suspected unsatisfactory result due to insufficient time for water to run before taking sample for testing - Fresh water samples taken to WSD and DH again - Re-opening of KPSP delayed	- In 2 radio phone-in programmes in the morning, ADLS said : • Bloodworms had been examined by FEHD and confirmed to be larvae, but no eggs or pupae found • Water inside water slide was circulating, not stagnant • Water slide was not breeding ground for bloodworms • LCSD was waiting for Police findings - In an electronic media interview in the same morning, ADLS said that FEHD Report indicated about 30 larvae only, not eggs or pupae - In the evening, Police issued press release stating that investigation still going on. There was no evidence to suggest that bloodworms actually bred in water of swimming pools.

Date	Event	Press Release and/or Interview Summary
	- Fresh guidelines developed for maintaining hygiene at the pool after re-opening At **HHRSP**, report of bloodworms in leisure pool - Pool staff checked and found one dead bloodworm. - DDLM alerted and pool staff instructed to investigate near the artificial rock feature in middle of outdoor leisure pool - No bloodworm was found **Inter-departmental Working Group meeting** in the afternoon (DH not present) - Divergent views expressed - Concluded that water filtration system of swimming pools was functioning properly, and could rid foreign objects - There was insufficient evidence to prove beyond doubt that natural breeding of Chironomidae had occurred in swimming pools **TVB evening news** - Reported FEHD findings already sent to LCSD the previous Wednesday showed larvae and pupae found in	

Date	Event	Press Release and/or Interview Summary
	TWSSP and KTSP - Quoted ADLS as still maintaining that : • only bloodworms were found, no egg or pupa • water under slide was not stagnant, therefore not suitable for breeding bloodworms • human factor could not be ruled out In the evening, at the **inter-departmental meeting** - DLCS and DDLS joined meeting - DLCS was briefed on the FEHD Report and shown a copy for the first time - LCSD realized that the incidents had turned into a credibility issue	
1.9.04	Local media reported prominently the inconsistency between LCSD public statement and FEHD findings. Some suspected LCSD of cover-up At **KPSP** - Informed by WSD that main pool showed excessive agar plate count - Fresh water sample sent to DH and WSD - ADLS agreed to defer re-opening for uncertainty of water	- Press conference held about 11:00 a.m. attended by DLCS, DFEH, ADLS, ADFEH, the two independent experts - DLCS emphasized : • LCSD had no intention to hide information • Initial findings of a working group revealed no concrete evidence to prove midges were bred in TWSSP leisure pool - Expert microbiologist explained :

Date	Event	Press Release and/or Interview Summary
	test results Bloodworms found at **HHRSP** - Around 8:55 a.m. lifeguard found bloodworms underneath artificial turf on platform next to artificial rock feature - DLM was notified and district management arrived on site shortly after 9:00 a.m. - Staff pulled away turf and found more bloodworms. - District management notified PIO and CLM around 10:00 a.m. - Staff cleared away the dirt, cut artificial turf into pieces and kept them in plastic bags - Samples collected and sent to FEHD - Around noon, LCSDHQ instructed district staff to report the incident to the Police - In the afternoon, CLM and pool management discussed. Concerned that dirt might spill onto pool and contaminate water, district staff made various attempts to clean out the dirt from the rock platform. The dirt was finally collected in buckets and flushed onto the surface channels near the pool. - Shortly after 6:00p.m. Police arrived, having received a	• The 30 pupae cases found in "turtle" at TWSSP suggested it might be suitable for midges to live there for a short while • Although breeding (i.e. complete life cycle) could have occurred in that environment, there was, however, no solid evidence to show that this had or had not indeed occurred. - ADLS admitted having missed out some details of the FEHD findings but reiterated that water under TWSSP "turtle" was not stagnant - In a radio phone-in programme in the evening, DLCS apologized for ADLS leaving out information of both larvae and pupal cases being found at TWSSP

Date	Event	Press Release and/or Interview Summary
	'999' report from a lifeguard on the discovery of bloodworms at HHRSP. Police stopped cleansing work and cordoned off the pool - Police officer responsible for the LCSD case learnt of bloodworms at HHR from news on TV - DDLM called the Police officer on the matter. The Police officer informed DDLM that he already learnt of the incident from news on TV. - At 7:20 p.m. the Police officer arrived at the scene. **FEHD** memo to LCSD - Informed LCSD that samples contained 16 larvae and 2 pupae	
2.9.04	Media prominently reported HHRSP bloodworms, some headlined that LCSD had destroyed evidence **LCSD** - Decided to carry out joint inspections with FEHD of all 36 swimming pools - Sought advice of FEHD on how to keep the facilities and environment clean and free from infestation	- DLCS and DFEH went on air to answer media queries, maintaining no intention of destroying evidence as all torn turf had been kept in plastic bags and clean-up of dirt being necessary. DLCS apologized once more for causing confusion over the matter - Evening LCSD issued Press release : • Joint inspection team conducted that day by LCSD,

Date	Event	Press Release and/or Interview Summary
	KPSP - LCSD received DH test results showing 3 out of 8 samples still unsatisfactory - Fresh samples sent to DH and WSD **FEHD** - Found 5,060 larvae, 1809 pupae and 30 adult midges in HHRSP samples - Verbal results discussed on site **HHRSP** - Joint inspection by Police, FEHD, LCSD, the two experts - Larvae, pupae and adult midges found in various surface channels in vicinity of pool areas **SMVSP** - Found 2 bloodworms at artificial waterfall	and FEHD and the Police • FEHD staff considered general environmental hygiene of swimming pool compounds satisfactory, but several surface channels were found to have accumulated organic debris • Several sites favourable to breeding of midges found • Specimens of different stages of life cycle found at locations around the pool but quite separate from the filtration and circulation systems • Preliminary examination of specimens collected revealed about 5000 larvae, some 300 pupae and about 30 adults • It was believed that there was natural breeding of midges in HHRSP swimming pool compound
3.9.04	Newspapers prominently reported on large number of bloodworms and full life cycle in HHRSP. Many criticized LCSD handling of the bloodworm incidents	

Date	Event	Press Release and/or Interview Summary
	Kennedy Town Swimming Pool - Some bloodworms found in secondary pool - Pool closed for investigation - Water samples sent to WSD and DH for testing **KPSP** - Joint inspection by FEHD, the Police, LCSD and the two experts - 1 pupae case and 1 suspected adult midge found in sewage pit - 5-6 larvae found in key hole of sewage pit cover - 1 pupa and 2 live midges found in enclosure underneath staircase near training pool	
4.9.04	**LCSD HQ** revised guidelines to districts on sighting of bloodworms at public swimming pools - DLMs should inform DDLS, respective AD, CLM, SLM (Aquatic Venues) and CIO of the sighting - DLMs to report the incident to Police - Affected swimming pool should be closed immediately - Original environment should be protected	

Date	Event	Press Release and/or Interview Summary
6.9.04	At **KPSP** - WSD test results indicated samples satisfactory but aluminum content slightly high At **Kennedy Town SP** - WSD test found the sample collected on 3 September on secondary pool was unsatisfactory. Fresh samples sent to WSD **Inter-departmental meeting** chaired by LCSD attended by FEHD, DH, EMSD, WSD and the two experts - Agreed that evidence was not sufficient that bloodworms could breed or develop in normal swimming pool - For special installations in swimming pools, such as play equipment and artificial turf, where the flow of water was slow and organic matter could accumulate, bloodworms could breed - Some places within or surrounding swimming pool compound, such as drains and manholes, could also be breeding ground for bloodworms	LCSD press release listed remedial action to be taken - A large-scale thorough cleansing of all 36 public swimming pools between 8 and 14 September - From 15 September, each pool to be closed half-day for cleansing - Water quality to be tested more often - Arch SD requested to review design of artificial turf and play equipment - Strict requirement for swimmers to go through footbath before entering pool area - Joint inspection with FEHD of all 36 pools and pool compounds to prevent breeding of bloodworms - Schedule for thorough cleansing provided Press release also reported findings of the inter-departmental working group formed to trace causes for bloodworms - Certain environment in and outside pool compounds and specific installations (such as play equipment and artificial turf) in some pools could serve as breeding ground for midges - Current evidence does not suggest bloodworms could actually breed in pool water - The filtration system in affected pools were in normal

Date	Event	Press Release and/or Interview Summary
		operation - LCSD had invited FEHD to jointly inspect every public swimming pool. Every obscure spot such as small ring holes on manhole covers will be carefully checked to prevent breeding of bloodworms

Annex 4
(Para 3.30)

FEHD's Interpretation of Findings

I. Kowloon Park Swimming Pool

Summary of findings	Overall Interpretation
1. Adults of Chironomidae were identified in the vicinity of the swimming pool. 2. Around 1100 adult Chironomidae were collected by traps set near the indoor swimming pool. 3. All the larvae (~165) received were examined to be of 3rd and 4th instars. 4. One of the adults examined was found to have a pupal case attached. 5. Samples of sand and activated charcoal were incubated for 2 days in our laboratory. One remain of Chironomidae larva and one remain of adult insect were identified from the samples. Alga was identified in one of the sand sample of the filtration system. 6. Water of higher nutrient content might be present in the bottom part of the indoor pool as it was always covered by a movable platform.	The findings indicated that Chironomidae might be able to survive in the water of the swimming pools : Firstly, part of the bottom of the swimming pool was always covered by a movable platform. The circulation of water at that part of the pool would be very poor. In addition, the covered part was not regularly cleaned and it might support the propagation of Chironomidae. Moreover, alga was detected in the sand samples from the filtration system. Hence, a higher level of nutrient might present in the covered part of the pool which served as food source of the Chironomidae. Secondly, larvae were of 3rd and 4th instars and one adult was found to have a pupal case attached. This appears that the aquatic stages of the Chironomidae were able to survive in the pool water and pupate into adult. Besides, the presence of adult Chironomidae in and near the swimming pools and the poor flight range of Chironomidae reported suggest that they have a tendency to complete their life cycle in the vicinity of the swimming pools.

II. Tai Wan Shan Swimming Pool

Summary of findings	Overall Interpretation
1. The samples of Chironomidae were all flushed from the inside of a hollow recreational facility (Turtle Water Slide). 2. Many air holes were found on the upper part of the facility which allow the entry of adult Chironomidae. 3. Holes were also identified in the lower part of the facility for water exchange. 4. 31 larvae, ~30 pupal cases and 3 adult Chironomidae were received. 5. The larvae received were examined to be of 3rd and 4th instars.	The findings indicated that the recreational facility there might provide a favourable breeding place for Chironomidae: Firstly, air holes in the upper part of the slide might allow the entry of adult Chironomidae to lay eggs. Secondly, water exchange in the bottom of the Turtle Water Slide was poor which might allow the accumulation of debris. The accumulated debris might provide a food source for the development of Chironomidae. Thirdly, larvae, pupal cases and adult Chironomidae were collected from the water trapped inside the slide. This indicated that Chironomidae might be able to complete their life cycle in the water trapped inside the Slide.

Annex 5
(Para 4.5)

CLEANING SCHEDULE FOR SWIMMING POOLS

1. LCSD's cleaning contractors are expected to perform cleaning duties covering the whole pool compound, including offices and car parks. The routine cleaning duties during operation hours for the following areas of the pool are set out below -

I TOILETS AND CHANGING ROOMS

- At all times, sweep, clean and damp mop floor to keep from litter
- At all times as directed, wash and scrub wall, floor, shower curtains, urinal outlets, pipes, and toilet fittings with water and an approved anti-bacterial detergent, mop dry and disinfect thoroughly so that all offensive odours are removed
- five times per day clean and wash pedestals, WC pans and urinals thoroughly with water and an approved detergent
- five times per day wash and clean toilet fittings, quarry tiles, shower recess walls with water and an approved anti-bacterial detergent, mop dry and disinfect thoroughly so that offensive odours are removed
- five times per day clean and wash toilet cubicles, walls and doors
- five time per day, wash and clean urinal outlets with water and an approved detergent, clean toilet pipes with an approved acid remover
- empty waste paper bins and ash trays as required
- sweep clean surface channels and drain during session breaks
- daily spot clean changing lockers and remove stains with an approved chemical cleaner
- refill soap dispensers and place deodorant tablets as required
- dust clean all ceiling and internal surfaces weekly
- clean and wash window louvers and frames weekly
- clean and polish all brass, aluminum and metal items with an approved chemical polisher weekly
- dust and clean all light fittings including lampshades as required

- replace dilapidated shower curtain as required
- refill toilet paper as required

II POOL DECK AND CIRCULATION AREA

- at all times as directed sweep, clean and damp mop deck floors to keep free from litter;
- empty bins and ash trays as required
- sweep all furniture such as chairs and tables on the deck during session breaks
- clean artificial grass arena(if provided) with vacuum cleaner and remove stains with an approved cleaner daily
- sweep clean slope (if there is any) adjacent to the pool deck area to keep free from litter daily
- water flower beds/pots provided at pool deck area daily
- sweep clean surface channels and drains daily
- clean and wash walls (if any) and the attached fittings on them daily
- clean the pool deck area with pressure jet cleaner (if provided) and remove stains during session breaks

III SPECTATOR STAND AND PASSAGES

- empty litter bins and ash trays and clean them up during session breaks
- clean and wash seats, floor and passages with hose and an approved detergent and mop dry daily
- remove stain on seats, floor and walls daily
- dust clean all light fittings, including lampshades monthly

2. In addition to daily cleaning schedules, the contractor is also expected to conduct extra monthly or weekly supplementary thorough cleaning of pools after the operation hours. The frequency of such cleaning operations varies from weekly to monthly depending on the size of the pools.

Annex 6
(para 5.1)

Swimming Pools found with Bloodworms during FEHD / LCSD Joint Inspections

Pools	Bloodworms found	Inspection Date	Location of discoveries
Hammer Hill Road	5060 larvae 30 adults 1809 pupae	2-Sep	• Surface & drainage channels near leisure pool
Yan Oi Tong	15 larvae 9 adults 1 pupal	2-Sep	• manhole near the children pool • uneven wall surface behind 2 pipings leading from water pump to a leisure pool
Kennedy Town	6 larvae	4-Sep	• drain hole of surface channel near Secondary Pool
Hin Tin	24 larvae	4-Sep	• sand trap in the service tunnel of the filtration plant
Ho Man Tin	38 larvae 1 pupae	6-Sep	• surface channels near artificial rocks
Kowloon Tsai	2 larvae	6-Sep	• surface channels
Morse Park	4 larvae	6-Sep	• a pit for pipes near a Teaching Pool
Lai Chi Kok	1 adult	6-Sep	• Diving Pool
Jordan Valley Rd	238 larvae 5 adults 3 pupae	6-Sep	• surface channel near a ramp for vehicles; the toilet block ; an Activity Pool ; and the foot of a bridge • inside a water tap stand near the Splash Pool ; & the toilet block • inside a dinosaur shaped slide • in void area of a flower bed at Training Pool
Sham Shui Po Park	62 larvae 2 pupae	6-Sep	• stagnant water beneath & on water containers • surface channels
Lei Cheng Uk	1 pupal	7-Sep	• Key holes near secondary pool
Mui Wo	1 larva	9-Sep	• inside a hole of a plastic perforated carpet
Kowloon Park	12 larvae 4 adults 14 pupae	11-Sep	• a key hole & a drain hole • drainage channel under the starting platform • a void next to the shower bath in indoor training pool
Kwun Tong	4 adults	11-Sep	• a pit • surface of a teaching pool
Tsing Yi	88 larvae	11-Sep	• a large flower pot at side of spectator stand